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ABSTRACT

One of a series of booklets designed to answer questions about agricultural communications is presented. This booklet illustrates how visual teaching speeds learning and effects faster agricultural progress. Chapter titles include: (1) Visuals and Learning, (2) Visuals in Extension Teaching; (3) Presentation Visuals; (4) Drama and Music; (5) Illustrated Literature; and (6) Projected Visuals. (CK)

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Using Visuals in Agricultural Extension Programs

ED 074364

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nothing is more important today
than the transfer of ideas
from one person to another

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Nothing is more important in the world today than the transfer of ideas from one person to another.

In this process which we call communication' lies the potential for man to overcome ignorance and poverty.

Visual teaching methods offer the teacher unique opportunities to increase the clarity and effectiveness of his vital message. Those teachers who work in the fields of volunteer adult education and whose challenge is to extend the frontier of knowledge will find visual methods particularly useful.

This booklet was written to help you become a better teacher — a better communicator of ideas.

ED 074364

Using Visuals in Agricultural Extension Programs

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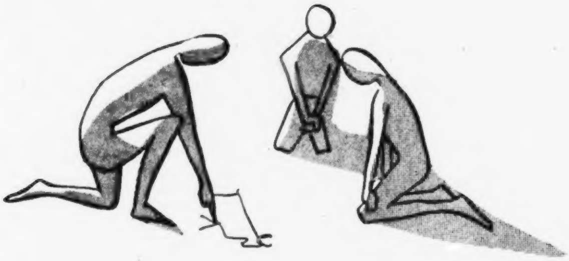

Foreword

This is one of a series of booklets designed to answer questions about agricultural communications.

The booklets were edited and published by the National Project in Agricultural Communications, East Lansing, Michigan, in cooperation with the Office of Food and Agriculture, International Cooperation Administration, Washington, D. C.

They are designed for use by United States agricultural technicians and by local agricultural extension workers in the many countries throughout the world, participating in the United States technical cooperation program.

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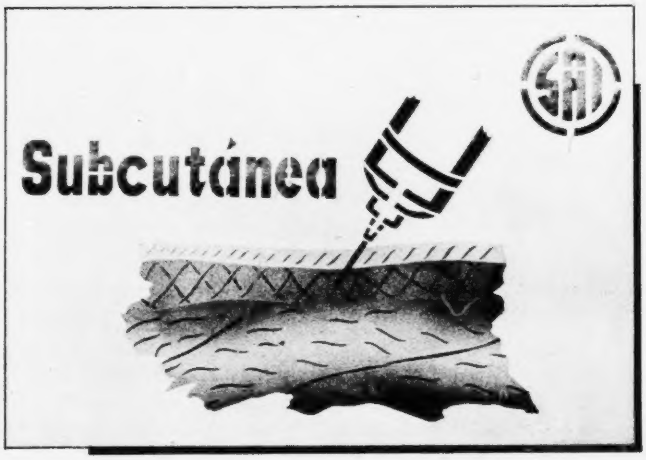
Introduction

A serious outbreak of rabies threatened 40,000 cattle in southern Bolivia. Loss of the cattle would ruin many farmers in the region.

The cattle could be saved through vaccination. But not enough technicians were available to even begin to do the job.

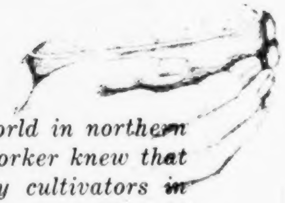
Working day and night, local agricultural extension leaders developed and put into action a plan that represented their only hope of checking the fast-spreading disease.



Medical authorities quickly assembled syringes and vaccine. Artists produced a series of silk screen posters. Extension leaders organized training schools.

In the schools farmers learned why vaccination was necessary. They learned how to vaccinate their cattle. Specialists used posters to explain the steps. The farmers received syringes and vaccine.

Within a few days hundreds of farmers were vaccinating cattle. They not only knew how to vaccinate but they understood why it was necessary. The plan worked. The disease was checked. The cattle were saved.



On the other side of the world in northern India, a village extension worker knew that sorghum crops produced by cultivators in his area were starved for nitrogen. He held up a small bowl of rice. He waved toward a group of boys and girls at play and said: "Suppose ten children were given only enough food for two children. All would go hungry!"

A few of the villagers nodded their heads in understanding. The extension worker invited these men to help him stake out two plots. The plots were plowed and seeded. Nitrogen fertilizer was applied to one of them.

The effect of the nitrogen was obvious soon after the plants came up. The contrast was more dramatic as the crops grew. At harvest, the sorghum from the fertilized plot weighed almost twice as much as that from the plot that received no nitrogen! As a result of these and other demonstrations by extension workers throughout India, the use of nitrogen to increase yields of sorghum is increasing steadily.

These two experiences, which happened in different parts of the world, illustrate how visual teaching can help bring about agricultural progress.

Extension workers set out to help farmers solve a problem in one case. They wanted to teach farmers how to do something better in the other case. In both cases teaching by *showing* resulted in learning.

The value of visuals in teaching has been known for centuries—even long before the ancient Chinese teacher observed that "One thousand hearings are not as good as one seeing."

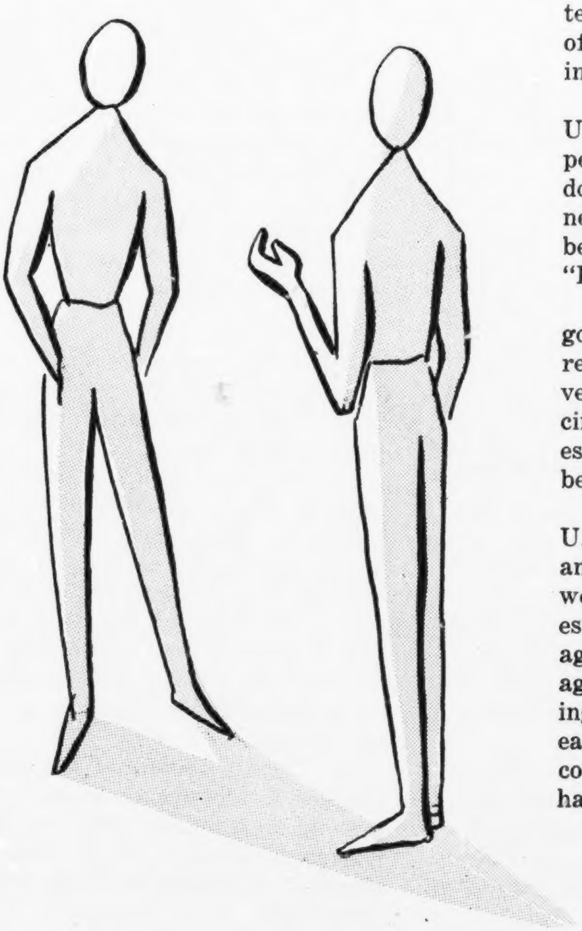
This is significant for those who are engaged in the world-wide movement of improving agricultural efficiency through extension education. Visual teaching speeds learning. It brings about faster agricultural progress.

Extension Serves People

An adequate supply of food and fiber is basic to human progress.

Today many nations of the world are engaged in heroic efforts to increase both the abundance and quality of food and fiber produced on their farms. To speed up this vital process, many nations have established *extension services*—organizations that 'extend' results of agricultural research to farmers who then put the information to practical use.

This process of voluntary adult education has been described as a 'bridge'; a 'link in a chain'; a 'dual highway'; a 'philosophy'. It is all of these and much more. In essence, it is *people* — working together, learning how to solve their own problems.



EARLY BEGINNING

In the United States, agricultural extension work is a highly developed program of adult education. It was started formally in 1914. Its real beginning was about 1800.

At that time almost 95 per cent of U. S. citizens lived on farms. Those farm people had problems and questions: "Why does one field grow better wheat than a neighboring field?" "What variety of seed is best?" "How can one control grasshoppers?" "How can I get more milk from my cattle?"

These puzzled farm people asked their government for help. They said to their representatives in Congress: "There are universities to teach our sons theology, medicine and law. Why can't universities be established to teach our sons how to farm better?"

Congress listened and as a result, the U. S. Department of Agriculture and federal and state supported agricultural colleges were authorized in 1862. Colleges soon were established in many states. Professors of agriculture were employed by these state agricultural colleges to teach subjects ranging from soil management to livestock disease control. But the professors soon discovered they had too little information. They had more questions than they had answers.

Then in 1887, Congress appropriated money to add a state agricultural experiment station to each state agricultural college.

New knowledge about soils, seeds, fertilizers, animal feeding and disease control soon began to come from the new experiment stations. Surprisingly, farm people were slow to accept or use the new information. Few farmers had ever seen an experiment station. The muddy miles between a farm and the state experiment station made the station's 'book learning' seem remote, impractical and unimportant.

EXPERIMENT IN MASS EDUCATION

Then in 1914, a generation after the founding of the experiment stations, began a great experiment in mass education—the organized 'extending' of education to large numbers of people on an informal, voluntary, out-of-classroom basis. Specialists — technically-trained men and women—were employed to sort out practical research results and put them into language and demonstrations that farm families could understand and use. There were specialists in agronomy, horticulture, animal husbandry, entomology and some in the homemaking arts.

Resident 'agents' also were employed by state extension services to work in local farming communities and demonstrate improved practices. These agents were broadly trained in agriculture and home economics and became known as 'county agents'.

This budding extension organization and its program of operation seemed sound but progress was slow. Farm families often hesitated to accept the information. They had good reasons for sticking to old and familiar methods. Old methods had kept them going. Why risk failure with an unknown seed or fertilizer or ration or farm management method?

CONCERN FOR PEOPLE

Then the new extension service made a discovery. Extension's concern was not only soils, crops, and animals. Its concern also was *people*. The basic job was not merely to recommend a better variety of wheat. It was to help farm families: (1) become aware that a bigger wheat harvest was possible, (2) feel that another variety might be the source of greater family comfort and security and (3) reason their own way to the decision 'Let's try a little'.

Agricultural extension work in the United States therefore evolved over a period of years in response to the demands of farm people. Through the years extension workers have learned that given knowledge, farm people usually can work out solutions to their problems.

This has led to the philosophy that extension's job is to 'help people help themselves'. The phenomenal increase in United States agricultural production that has taken place in the span of only two generations since the establishment of organized extension work is adequate testimony to the soundness of the idea.

One of the problems facing the world today is how to make changes in a relatively short period of time. One way is through an active program of extension education.

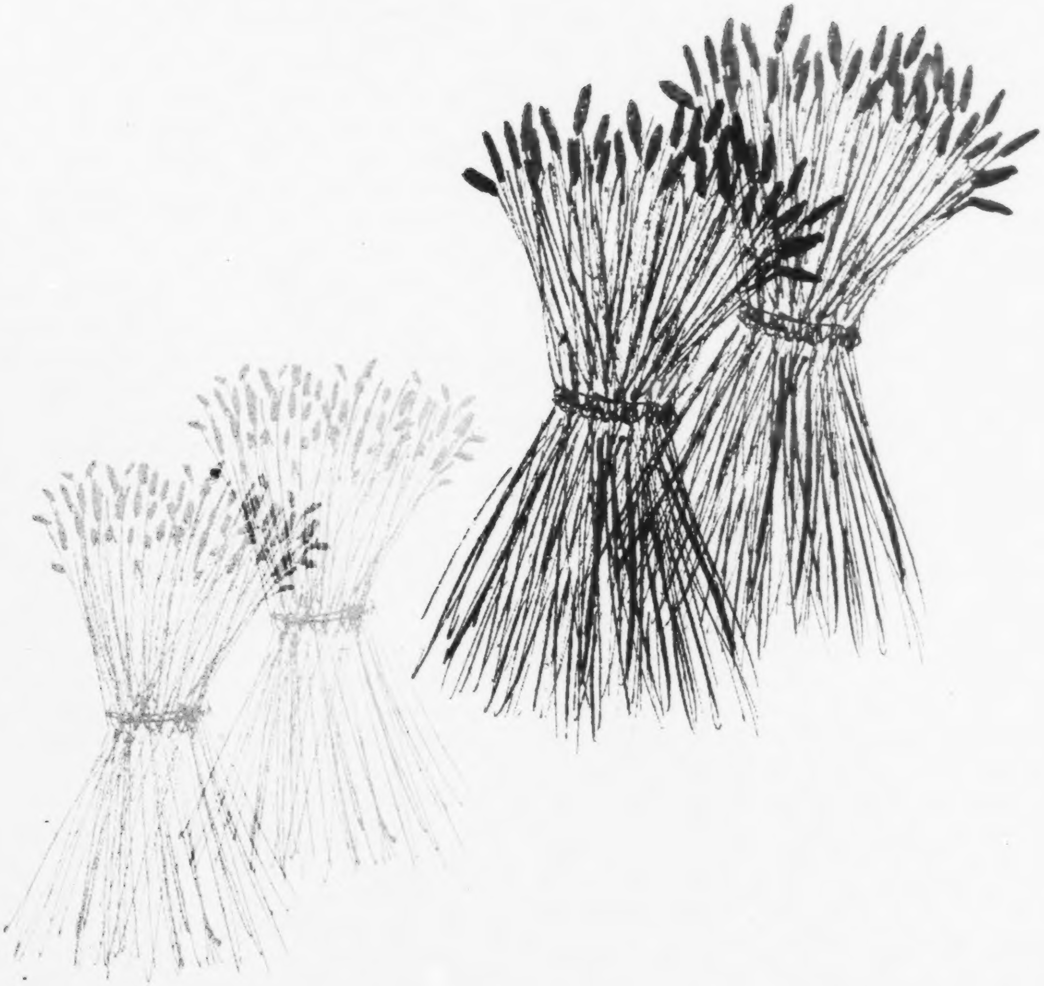
Modern agricultural science is producing knowledge at an amazing rate. Farm families must receive and use this knowledge if they are to produce food and fiber abundantly and efficiently. The extension worker therefore is the 'bridge'—the 'highway'—the 'link' between scientist and farmer.

The pattern for extension education development has been drawn. Objectives and methods are clear. Mistakes of the past can be eliminated. Progress in terms of today's knowledge is bound to be rapid.

DEVOTION TO SERVICE

Today extension truly is a world-wide movement. It is bringing about agricultural progress in many countries of the world. The strength of the movement lies in the devotion of professional extension workers to the ideal of service to their fellow men and to faith in man's ability to work out the best solutions to his own problems.

Since agriculture is the greatest single industry in the world, the potential of the movement in terms of being a force for good is tremendous.



At the edge of a village in West Pakistan an extension worker held up two bundles of wheat before a group of cultivators.

One bundle was grown from local seeds of the type that almost all the cultivators planted. The heads were small with tiny pale kernels. The straw was short and uneven.

The other bundle was grown from improved seeds developed by plant scientists with the Pakistan Ministry of Food and Agriculture. The heads were long and full with plump amber grains. The straw was tall, stiff and of uniform length.

"Grow this improved wheat and get two bags from the land that now gives you only one," he urged. Then he described how the new wheat resisted damage by insects and disease and how it resisted lodging.

Ideas Must Be Communicated

The world has never seen a time when the role of the teacher has been so important. Nor has there ever been a time when so many want to learn so much so quickly. The extension teacher accepts both a grave and an exciting responsibility: *grave* in the sense that the welfare and often the very lives of people depend upon his skill in conceiving and executing his plan of teaching; *exciting* in the sense that he is part of a great and world-wide educational movement.

To a large measure his success as a teacher—the degree of progress made by his people—will be determined by his ability to communicate ideas. To achieve progress he must communicate. His people must understand.

In the real-life situation described above are all of the elements of what may be described as a *communication process.* The components of this process are:

THE COMMUNICATOR - the village extension worker

THE OBJECTIVE - to increase wheat production

THE AUDIENCE - cultivators who grow wheat

THE MESSAGE - improved varieties give higher yields

THE CHANNEL - an informal group meeting

THE TREATMENT - showing of actual samples of local and improved wheats to dramatize differences between the two

Which of these components could you remove and still bring about rapid learning? Each is essential. Each is different. Each plays a vital part in the communication and understanding of an idea. Let's examine them more closely.

THE COMMUNICATOR

1. The *communicator* provides the initiative — the physical and intellectual power to set the communication process in motion and to keep it functioning.

THE OBJECTIVE

2. The *objective* or goal is what the communicator hopes to accomplish by setting the communication process in motion. Many communication failures occur because the communicator has not decided exactly what he wants to accomplish. Too often objectives are not clearly enough defined. This makes effective communication difficult, if not impossible. The extension worker who sets out to *increase wheat production* in his area has a more clearly defined objective than the worker who decides to *increase agricultural productivity.* Only by establishing clear-cut objectives or goals can the communicator effectively plan for the succeeding steps in the communication process.

THE AUDIENCE

3. The *audience* is the person whom the communicator wishes to receive, understand and use the idea. Some *change* must be brought about in the audience if progress is to be made—change in *knowledge;* or change in *attitude;* or change in *behavior.* If no change takes place there has been no communication—no progress. Communication has taken place if the cultivators learn facts about the new wheat; or if some of them begin to feel that the new wheat may

offer some advantages; or if some of them decide to try it.

The significant thing to remember is that while people are in general rather similar, they also differ in thousands of ways—nearly all the result of past experience. Often some of these differences act to block communication.

Differences in education which mean differences in understanding difficult concepts and technical language frequently cause communication failure because the communicator does not phrase his message in terms that his audience can readily understand. For example an extension worker cannot expect much progress in getting his people to build sanitary latrines or to control flies and mosquitoes if they have not yet learned the germ concept and the relationship between micro-organisms and disease.

Good extension teaching therefore involves a thorough study of audience. The more we know about the audience—their abilities, backgrounds, interests and previous accomplishments—the better the job of teaching we can do.

Furthermore our knowledge of the groups with whom we work will help us plan our approach to them and select the right methods to use.

An extension adviser was assigned the job of working with villages in a remote province. Arriving unannounced, he found no one in sight. Any stranger was under some suspicion so he was faced with a real problem. Contact with the village elders had to be established in order to get anything done.

The adviser went casually to an open space and started drawing figures in the dust with a small stick. Youngsters soon appeared. As a small group gathered, he gradually overcame their shyness by entertaining them with little tricks and games.

Before long most of the children of the village were around him enjoying themselves thoroughly. In a short time, some of the parents edged in cautiously. After observing the action for a time, they too began to smile. Contact thus was established between extension worker and adult villagers through the children.

By understanding his audience and by the use of simple visuals which they could understand, this extension worker was able to communicate effectively in what otherwise might have been a difficult situation.

Noise

A communication theorist would call the villagers' suspicion of strangers "noise". Noise in this sense is anything that prevents a message from getting through to the intended audience. Noise may be fear, prejudice, inability to grasp the idea or any of many possible barriers.

The point is that good communicators anticipate and try to prevent noise if they can. And they're ready with means of overcoming barriers in case they arise.

Communication failure also may occur when the idea being communicated seems contrary to accepted local customs and beliefs. This too is noise. Recognizing this danger beforehand and planning alternate approaches to the problem is an essential part of successful communication.

The attitude that the communicator conveys to his audience often affects the transmission of the idea. If the communicator seems to his audience well informed, sincere and respectful of those to whom he is speaking, he is more likely to be successful in transmitting his idea than is the person who seems poorly informed, disinterested, insincere or disrespectful of his audience.

THE MESSAGE

4. The *message* is that part of the communication process which if received and accepted by the audience, will help the communicator reach his objective. In general, individual messages represent steps toward the solution of a larger problem. Growing improved varieties is an important step in increasing wheat production. But there are other steps that are important too in producing the highest possible yields.

It is useful therefore to list *barriers* that stand in the way of achieving your *objective.* Some of the barriers that could be listed in the example are:

> *Cultivators plant local varieties of wheat. They do not know that improved varieties are available.*
>
> *Cultivators do not use fertilizer on wheat.*
>
> *They do not keep weeds from their fields.*

In most cases, the messages then are obvious. They are designed to overcome the barriers, thus:

> *Improved varieties give higher yields.*
>
> *Fertilizer gives higher yields.*
>
> *Keeping weeds from your fields gives higher yields.*

From his list of barriers, the extension worker selects one or two of the most important. These give him his messages and form the basis of his teaching effort. Usually it is far more effective to concentrate on one single important message than to try to cover all of the different aspects of the problem at one time. Communication failure can be caused by too many messages as well as by too few.

THE CHANNEL

5. Whatever your message is it must be transmitted through a *channel.* Channel means the method you use to get your message to your audience. In the example given at the beginning of this section the channel was a *group meeting.* Other channels that could be used are *tours* to farms where recommended practices can be seen; *demonstration plots* that show the advantages of the recommended practice; *trained local leaders* who teach friends and neighbors how to follow the practice.

These are just a few examples of channels. Other channels include exhibits, printed leaflets and other matter, newspapers, radio and even television. Using a combination of channels increases the likelihood that your message will get through. A combination of channels produces greater impact on each individual in your audience. And due to the differences among people, one channel may get through where another would fail.

THE TREATMENT

6. The *treatment* is the way you put your message across within a channel. The treatment of your message is what the audience actually sees, hears or does. Showing the two contrasting bundles of wheat was a treatment given to the message within the channel of a group meeting. Other treatments—ways in which the message could be put across in the same group meeting—might include still photographs to be passed around showing differences in appearance and yield, slides, motion pictures, a puppet show.

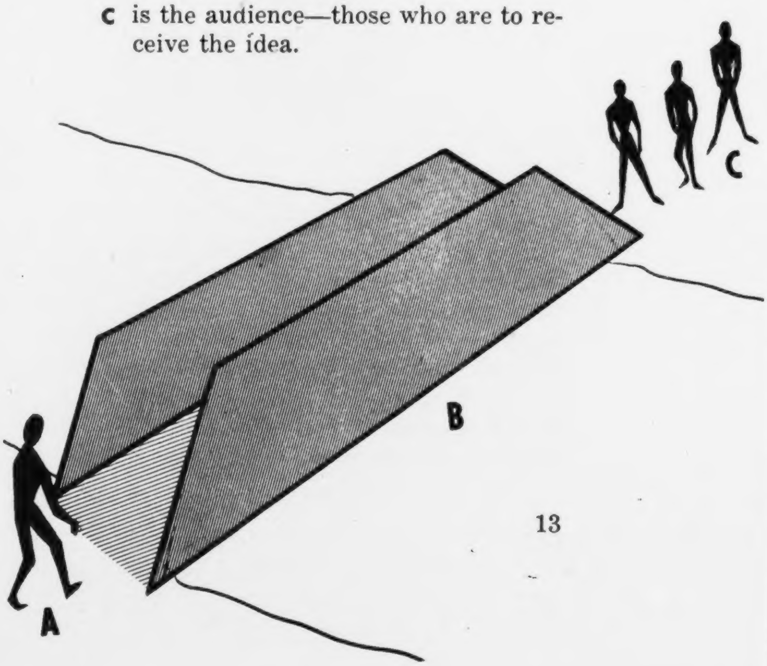
Since people are more likely to believe what they see, it is difficult to find a better visual than the actual object. Thus the bundles of wheat, a visit to a demonstration plot or a tour to a farm where the wheat is being grown, each represents excellent visual teaching.

The process of communication is visualized in the sketch below.

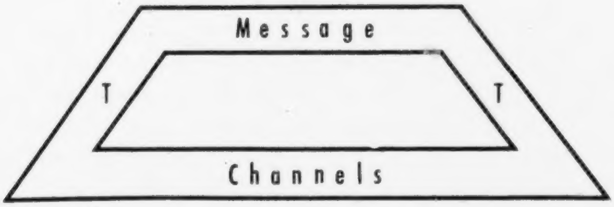
A is the teacher or communicator—the person with an idea to be transmitted to one or more other persons.

B represents the organization and methods of transmitting the idea.

C is the audience—those who are to receive the idea.

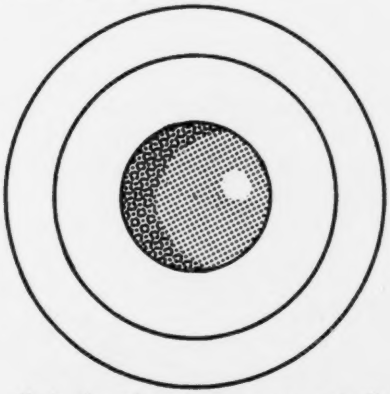


Effective communication is the sum total of all three parts of the diagram. Notice however that two of the three parts of the diagram are people. The third part represents the means of getting information from one person to another and is the complex unit of message, channel and treatment.

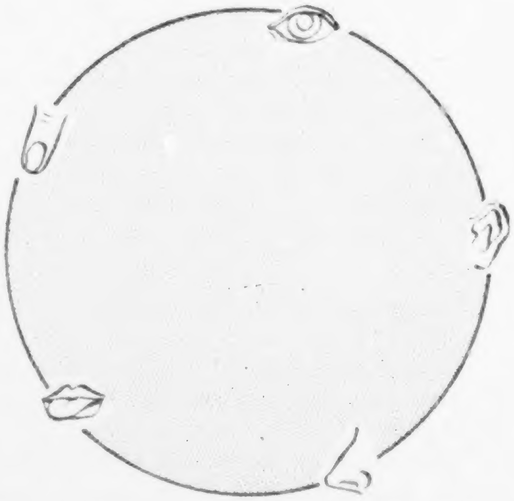


In most discussions of communication much time is spent on analysis of the 'bridge' and its component parts. It is a *person* however who conceives the idea to be transmitted. And a *person* will receive the message. Perhaps we should therefore spend as much time studying *people* as we do analyzing methods of teaching people.

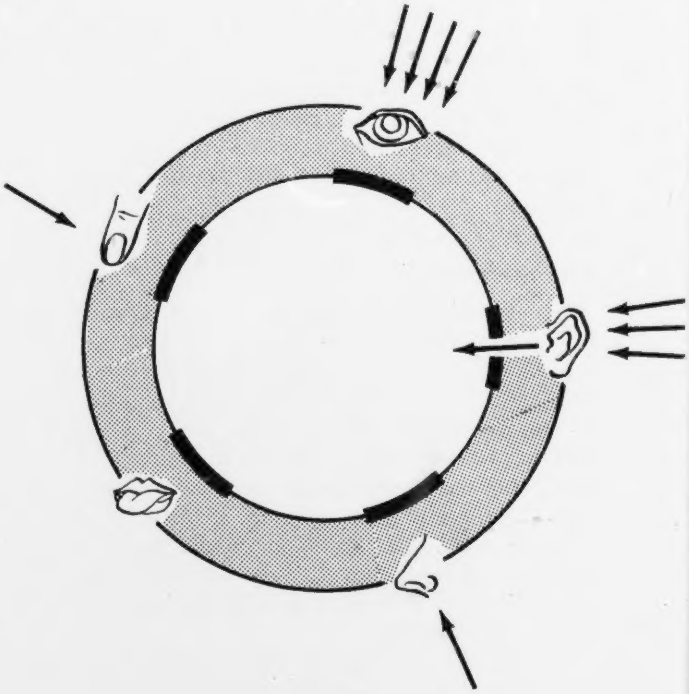
A person may be visualized by a drawing of the planet Saturn.



Let the drawing represent the sum total of the human body, mind and spirit. What then does each part represent? Each person constantly receives impulses or stimuli from the world about him. These strike the outer ring. Let us then call the outer ring the sensory receivers. Through these receivers we see, hear, smell, taste and feel.



through the outer ring—the sensory receivers —we see, hear, smell, taste and feel



the inner or 'attention' ring admits or blocks out signals received through the sensory ring attention is essential to learning

The important fact to recognize in this analogy is that before anything has meaning to a person, it must be received through his sensory receivers. Most of what we learn involves the use of our eyes. When we are able to use two receivers such as the eyes and ears, we greatly increase learning and retention. It becomes obvious therefore that visual teaching, properly conceived and executed, is one of the most potent forces available for a world-wide educational effort such as agricultural extension.

Feedback

One phase of the communicator's job omitted to this point is evaluation. Good teachers evaluate their work continuously. Seldom is a lesson taught twice in the same way. We experiment and try new ideas and materials in a constant effort to do a better job. For this we must have 'feedback' of some kind from the learning group. We note how the presentation is being received, the interest in questions and comments, the group's willingness to follow-up with desired action. These and other techniques incorporate a 'feedback' which causes us to re-examine our materials, our methods and perhaps even our objectives.

The successful extension teacher will recognize that accurate communication probably is his biggest problem. It is a problem because every person in his audience is different—the product of his own past experiences. An approach that will work with one man may not work with his neighbor. In every group there are those who do not see as well, hear as well or do things with their hands as well as others. There are those who are less well able to follow abstract ideas.

It is obvious therefore that the teacher must train himself to be conscious of these differences and to provide enough range and flexibility in his teaching methods to meet various audience situations. *Visuals can help bridge the wide gaps in experience among individuals and provide a common background for all.*

SUMMARY

To those who would go out and work effectively with people let it be clear that there is no basic competition among the methods or channels of communication. *The challenge is that of making meanings clear and of getting ideas accepted.* To this end you will need to use *all* of the methods of communication readily at hand and improvise others as you go along. It is a question of getting the proper combination of channels for the job at hand.

You will find visual materials and methods to be a major help instead of an incidental one. With their help and an understanding of the communication process, you will get the job done.

Farmer Ahmad in Iran wishes to teach his son how to use the sickle so he can help cut the wheat. As a small boy, he has seen his father cutting the grain many times. But when first given the sickle he cannot do the task well. The process the boy goes through in becoming able to cut the grain is learning. *He is a different boy now; he has added to his* knowledge *about wheat; he feels different; his* attitude *about himself, about his father and about farm work has changed. The boy has* learned.

Visuals and Learning

Stated simply—*learning is that kind of activity by a person which causes him to be different in some way afterward.* And because of his action, he:

Adds to or changes his previous information or knowledge;

Does some task or operation differently than before; or

Changes his attitude or point-of-view about something.

How does a farmer *learn* new facts, improved farming practices? How do his long-established attitudes or ways of feeling become changed?

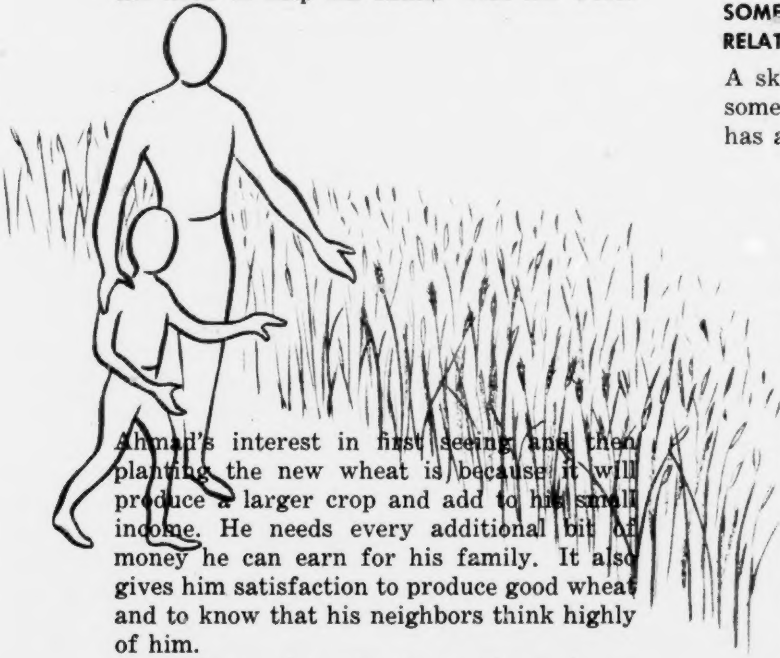
Let us use the father, Ahmad, as an example. At wheat threshing time, Ahmad hears that his cousin in another village has threshed out the largest yield of wheat he has ever grown. It was a much greater yield than Ahmad himself received that season.

A few days later he visited his cousin to see this wheat. It looked like very good wheat. It was a different variety than previously was grown in any of the villages in that region. The landlord had given his cousin the seed; he had also given seed of this new variety to several other farmers in his cousin's village. Nearly all of them had harvested more wheat than they had for many years.

Some farmers in his cousin's village had planted the same wheat as formerly and had harvested about the same yields as usual. Ahmad *learned.* He learned that there can be a big difference in wheat varieties *(new knowledge)*; learned that sometimes it pays to try new ideas *(change in attitude)*.

Learning stems from an interest in something or a *felt need* for something. The learner does things — becomes active — in order to satisfy his interest or need.

Ahmad's son feels a *need* to learn to use the sickle skillfully, not because he enjoys harvesting the grain, but to be like other boys of his age. He also feels a *duty*— the *need* to help his father with his work.



Ahmad's interest in first seeing and then planting the new wheat is because it will produce a larger crop and add to his small income. He needs every additional bit of money he can earn for his family. It also gives him satisfaction to produce good wheat and to know that his neighbors think highly of him.

Successful extension workers always begin their work with farmers by finding and using these interests and felt needs. Through gaining satisfaction in these, farmers develop confidence in themselves and in the extension worker and will seek his advice in other problems.

NEW LEARNING IS BUILT UPON PREVIOUS EXPERIENCE

Previous learning or experience serves to stimulate new learning. This is especially true if the previous experience was satisfying and vivid. Ahmad's son learned to use the sickle quickly because he had watched his father harvesting wheat so many times.

Psychologists call this building of new learning upon previous experience—*association*. It is the fundamental principle of all learning. The extension worker uses it in almost everything he does. He begins to work with the farmer as he is. He learns how the farmer thinks, what are his attitudes, his customs, his fears or inhibitions, his habits, his skills. Each of us is a product of many previous learnings, experiences, attitudes, fears, customs and laws imposed by others.

SOME HUMAN TENDENCIES RELATED TO LEARNING

A skillful extension worker knows and uses some of the natural, human tendencies. Man has a tendency:

To seek and enjoy the presence of others.

To seek and enjoy the approval of others and avoid their disapproval.

To be aggressive or self-assertive. This explains how some individuals rise from the group to become leaders. Those less aggressive will follow good leadership.

To be ruled by his emotions, such as liking and disliking others, joy, sorrow, fear, pride, envy.

To be visual-minded—that is, he is especially receptive to things seen as compared with things heard.

Village farmers are very likely to respond to teaching methods which are in accord with the above tendencies. They will tend to reject or resent methods which conflict with these tendencies.

REMEMBERING AND FORGETTING

Farmers who learn from a good extension teacher will remember. The successful worker uses a number of techniques to help people remember. Some of these are:

1. Be sure the people are deeply interested in what they are learning. This means that they must *really want* to learn and are *ready to change*.

2. Be sure they understand very clearly each element of the learning and the relation of each part to the whole.
3. Use words that are simple and familiar. Use as few words as possible. Once they are spoken, words are gone forever.
4. Supplement talking with clear demonstrations and with illustrations from the learner's experience. Use vivid images, interesting symbols. It has been proved that people learn better and remember longer what they have seen than what they have heard.
5. If possible, have each person actually do the skill to be learned several times. Watch each learner carefully and correct his mistakes at once. We learn errors as well as correct things.
6. Teach the information or the skill as near as possible to the time it can be used. Example: teach insect control just in advance of the time the insects will appear.
7. Be sure that each person uses the information or skill to his own benefit. If it does not benefit him, help him understand why.

WHAT RESEARCH SAYS ABOUT VISUAL TEACHING

In spite of the effort involved and the occasional difficulties in using them, we know that visual techniques are well worth the time and trouble it takes to prepare and use them. Evidence of more than thirty years of research leaves no question of this.

The bulk of this research has been in the area of motion picture films, filmstrips and recently in educational television.

In addition, significant studies over the years have pointed to the advantages in instruction of flat pictures, graphic materials, radio and recordings, field trips, three dimensional and other types of materials.

We know a good deal about the potentials of visual materials; what they can do under certain conditions; what cannot be expected of them. Generally speaking, if motion pictures are well used in instruction, students will learn more factual information and remember it better than if films are not used. There is evidence that a body of factual information such as high school general science can be taught by films alone about as well as by a teacher using conventional classroom methods and even better when simple study guides are used.

Films can modify motivations, attitudes and opinions if they are designed to stimulate or reinforce existing beliefs of the audience. There is little evidence on the other hand that films can alter attitudes significantly in a direction distinctly contrary to existing beliefs, social structure or environmental patterns.

It seems clear that films can assist in the teaching of perceptual-motor skills such as the operation of machines and the assembly and disassembly of equipment. In various studies such benefits are reported as reduced time in learning new processes, less trial and error, more factual information and increased teamwork and efficiency when group activity is involved.

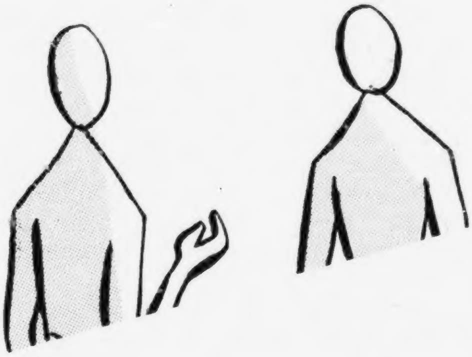
Filmstrips, slides and transparencies likewise add materially to learning efficiency—particularly when motion is not essential to learning. Even when motion is important, a combination of projected still pictures and motion pictures is apt to be significantly superior to motion pictures alone. In a UNESCO experiment, the value of visual materials in teaching health principles to a partially literate rural population was clearly demonstrated. Of all the materials used, filmstrips and slides were considered the most effective means of reaching large groups of people and of making the deepest and most lasting impressions.

Thus we could go on through the whole list of visual materials, citing their demonstrated value in the communication process. To those with experience in the field this probably is unnecessary. To those who would like further information, several useful references are listed in the bibliography.

Visuals in Extension Teaching

An agricultural extension worker has one main job—to get information to people.

How well he does his job is indicated partly by the total number of people he reaches and partly by the amount of change he produces in each of them.



PERSONAL METHODS

Probably the most effective kind of extension work is that done on a *personal* basis. This is when the extension worker visits a farm where he and the farmer study problems together, discuss them and work out a plan for their solution. This is an ideal extension teaching situation because the details of each person's problem will differ from that of his neighbor's, even if the problems are, in general, similar.

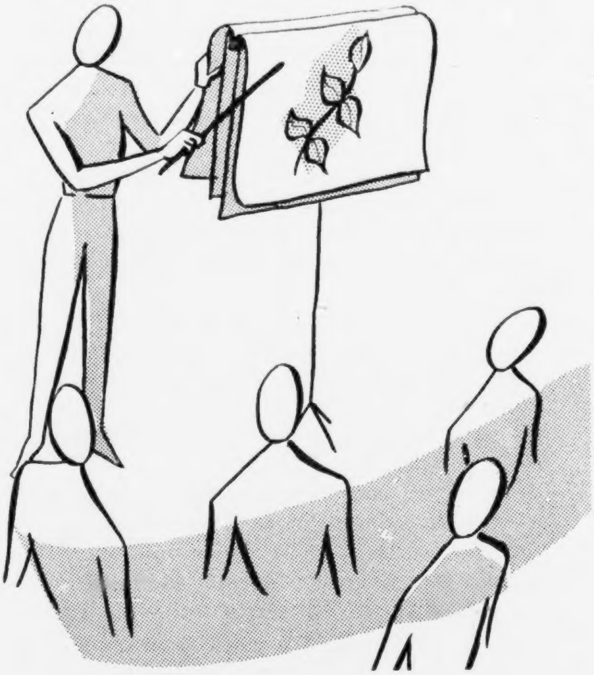
Sometimes the only way ideas are transferred is by personal approach. Ideas often have been accepted and tried more on the basis of the personal integrity, honesty and sincerity of the 'communicator' than on a full understanding of the idea.

The personal approach makes for greater accuracy in solving problems since the steps to solution can be more clearly planned to meet specific needs. This method also keeps the extension worker in close touch with farmers and with their current problems. Every extension worker should set aside a definite amount of time each week for personal contacts with farm people on their farms.

At the same time the urgent need for greater agricultural production throughout the world demands that each extension worker be an efficient teacher and use methods of reaching and influencing many more people than he possibly could through exclusive use of the personal approach.

GROUP METHODS

Experience has shown that certain kinds of common problems can be covered well in a *group* situation and that group learning can be rapid, effective and fun.



The *group* method therefore is another important method of teaching used by extension workers. This method brings together in one place a number of persons who have similar problems or interests.

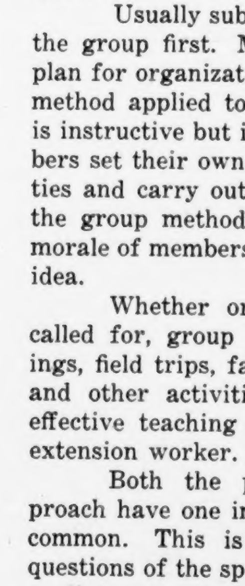
Usually, the extension worker discusses and illustrates the problem in general terms and then encourages farmers in the group to ask questions pertaining to their own situation. In asking a question, a farmer may ask the same question that is in the minds of several. The answer therefore satisfies not just one man but several. Extension encourages free discussion and with several farmers asking questions about the problem, the subject is certain to be well-covered by the end of the meeting. Frequently the subject will be too broad or too complex to cover in one group meeting, so additional meetings are planned and held.

Rat damage is an example of a common problem that can be effectively handled through cooperative group action. Since a successful rat campaign depends on community-wide organization and action, a group teaching situation is particularly effective.

Usually subject matter is presented to the group first. Members then work out a plan for organization and action. The group method applied to such a problem not only is instructive but is democratic in that members set their own goals, divide responsibilities and carry out the action. In this sense the group method increases confidence and morale of members and fosters the 'self-help' idea.

Whether or not organized effort is called for, group methods, including meetings, field trips, farm tours, demonstrations and other activities, are among the most effective teaching methods available to the extension worker.

Both the personal and group approach have one important characteristic in common. This is the opportunity to ask questions of the specialist and receive an immediate answer. The opportunity for a free flow of questions and answers helps bring about more rapid adoption of a particular practice.



MASS METHODS

But personal and group methods can not reach everyone who wants and needs information. So *mass* methods—radio, newspapers, magazines, posters, exhibits and printed materials—are used to reach large numbers of people quickly.

These methods are particularly useful in making large numbers of people *aware* of new ideas and practices or alerting them to sudden emergencies. While the amount of detailed information is limited that can be transmitted through mass media, they still serve an important and valuable function in stimulating farmers' interest in new ideas. Once made aware or stimulated through mass media, farmers will seek additional information from neighbors, friends, extension workers and progressive farmers in the area.

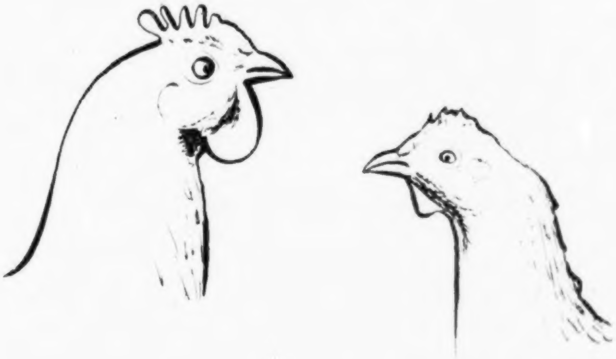
Thus extension uses three basic methods of getting information to farmers—*personal, group* and *mass. Visuals have a vital place in each of these methods.*

VISUALS IN PERSONAL TEACHING

Let us consider now how visuals fit into these three methods of teaching. To keep the discussion on a practical basis, let's assume that you are an extension field man with the Philippine Department of Agriculture and Natural Resources. You are in a remote barrio or village in northern Luzon where the main contact with the outside is through a battery-operated radio set. A recent farm broadcast from Manila urged farmers to cull their flocks for higher egg production. The program concluded with the suggestion: "For more information see your extension fieldman." A farmer who heard the broadcast hails you and asks for help.

In a situation like this, the need to catch some chickens should be obvious to the extension worker. Yet how many times do we try to 'talk' our way through a lesson when with a little effort we could *show* the lesson and greatly increase the amount of learning that takes place?

The teaching situation here is *personal* and with few exceptions, the *actual object* is the most effective visual to use in personal teaching.



There is a striking difference in appearance between a high-producing hen and a hen that is not laying many eggs. When a hen begins to lay, the pigmented parts of her body gradually bleach out and become pale or white. There is a definite order to the bleaching—vent first, followed by the eye ring, ear lobe, beak, bottoms of feet, front of shanks and so forth. Thus it is possible to identify by appearance those birds which have been laying steadily and those which have not.

Much of your teaching will be on this basis—personal, impromptu. Therefore you must train yourself to *think visually* and learn to use in your teaching, objects and materials that are at hand. Usually they will be more effective than anything you can prepare as a substitute although prepared visuals also can be excellent teaching aids.

For example if you had anticipated seeing farmers who would ask about culling, you could have taken with you a small culling chart or some simple illustrated leaflets to give out. Or you could have carried photographs or colored slides showing how to recognize unprofitable birds. It is very unlikely that you will have previousy prepared materials with you to meet every personal teaching situation however, unless you drive an enormous truck or simply wait for farmers to come to see you at your headquarters. Since both of these are impractical, it is best to learn to use actual materials at the problem scene. This way you can travel lightly and still have the finest of teaching aids available at any cost.

VISUALS IN GROUP TEACHING

Let's return now to our *group* situation with the problem of rat control and

consider opportunities to increase learning by using visuals in this situation. In this case it is fair to assume that you knew about the meeting in advance. Probably you encouraged it to be held. The main point is that there probably was time to develop a plan and supporting visuals for this meeting. Here are some of the visual possibilities.

Where power is available, color motion pictures and slides are excellent to explain the habits of rats; to show how they live and reproduce; to show control measures and build up enthusiasm for a campaign. But frequently, as in a remote barrio, power is not available so other means of showing this information must be planned.

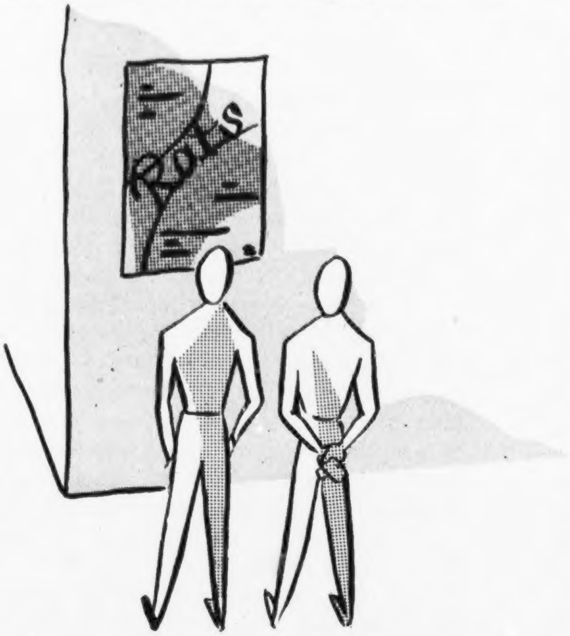
Enlarged photographs, flipbooks, flash cards, flannelgraphs and other visual media can tell the story step by step—effectively and realistically. Enlarged models of traps, samples of poison bait, a survey tour of potential bait stations, demonstrations of replenishing the bait supply—all will increase understanding and speed learning. A visit to a clean farm with rat-proof granaries, cribs and even a rat-proof house, will show the group how rats can be kept away.

Visuals used in a group situation make it possible for members to study their problems together and to better understand how these problems can be solved—many of them through cooperative group action.

VISUALS IN MASS TEACHING

Visuals in the *mass* method of extension teaching must be designed with their basic purpose in mind—to create awareness of an idea or to build interest in it. If, as an extension field man, one of your objectives is to introduce a new system of rice culture into your area, you will want to employ mass media and there are a number of opportunities to use visuals in the effort.

Simple attractive posters put up where large numbers of people gather or pass will call attention to the new practice. Exhibits set up at the market or near the store will serve as silent 'salesmen' of the idea. Photographs posted on barrio bulletin boards and published in local newspapers will carry the new idea to hundreds and even thousands of farmers.



Illustrated circular letters, leaflets and bulletins, sent to municipal agriculture teachers and other local leaders will be read and the information will be passed along to farmers.

Television, where available for extension use, is a potent mass medium to which almost every form of visual instruction can be adapted.

VISUALS MAKE YOU A BETTER TEACHER

Extension workers have found that their presentations are better organized when they use visuals. Good teaching means that you have well-planned lessons. In using visuals you must first establish your objectives, then outline the subject matter and finally visualize the important points. If you follow these steps you are almost certain to have a well planned lesson.

Because your material is well outlined and supported with visuals you have greater confidence and poise. You appear to be—*and you are*—a better teacher.

An effective teacher holds the attention of his audience at all times and keeps them interested in his message. An extension worker must be a good 'showman' because his people come voluntarily. If they lose interest they won't come back next time.

Well planned, well used visuals can help you succeed in what may be the most important job in the world today. The succeeding chapters will acquaint you with some of the different kinds of visuals that are being used in extension teaching in different countries throughout the world.

Kinds of Visuals

Many people who pick up this booklet will turn to this section first. They will want to find out what visual or combination of visuals will make them better extension teachers.

Visuals in themselves will not make anyone a better teacher. To become a better extension teacher you must first gain a greater understanding of people—particularly of how they learn. Next must come greater skill in solving problems and organizing work. And then must come practice and experience in using visuals to accomplish specific teaching objectives under a variety of conditions.

In this section you will find brief descriptions of many of the visuals being used in extension today. The simplest and more readily available forms are presented first. The more complex visuals, including those requiring special equipment, are covered last.

No single visual or visual method can be called the *ultimate visual* for teaching. Each has strengths and weaknesses. The important point is that an understanding of these strong and weak points will help you select *the* visual or visuals to use in specific cases.

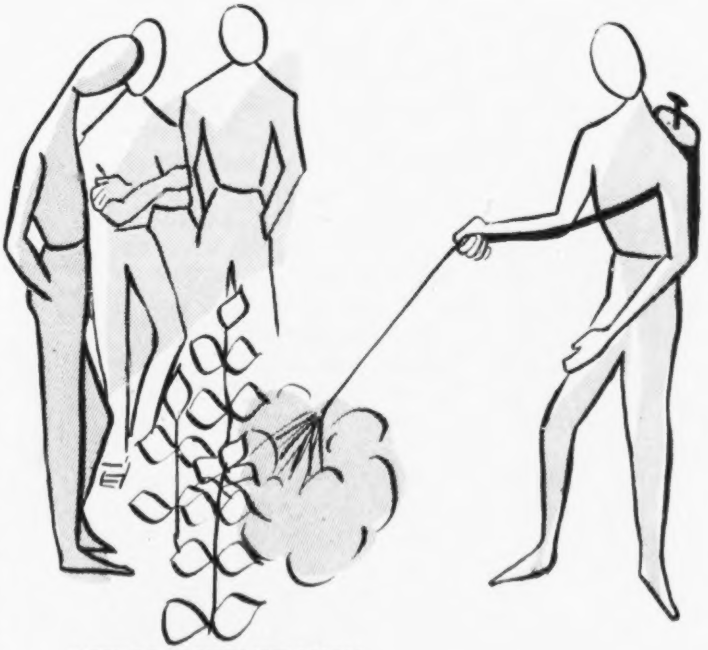
The cost of visual methods sometimes is questioned. Costs of teaching should be judged however not by the number of people *exposed* to new information but rather by the number who *adopt* the practice. On this basis, visual teaching is more economical than any other form of teaching.

DEMONSTRATIONS

When you teach by demonstration, you show someone how to do a new job; or you show him how to do an old job better.

The strength of the demonstration lies in its obviousness—its appeal to logic and reason. It is there before your eyes. It works better than the old method. Its use would bring improvement.

Extension uses two types of demonstrations—*method* and *result*.



METHOD DEMONSTRATION

The method demonstration is the oldest form of teaching. Men taught their children how to hunt; how to cultivate; how to survive—through forms of the method demonstration — long before writing and probably even before language itself developed. Learning by this process seems almost instinctive. In the jungle the tiger kitten learns to hunt by following and playfully mimicking the stalking tigress.

In the method demonstration, we *show* how to do a job step-by-step, like building a latrine, treating seed, planting seed in lines or using a mechanical duster to control insects. Your demonstration will be more successful if you will follow these steps:

1. *Decide exactly what you want to accomplish with the demonstration.* Test these objectives against such factors as whether or not the practice really is important; whether or not people can afford to follow it; whether or not supplies and equipment are available in sufficient quantities to permit its widespread use.

2. *Gather all of the information you can find about the practice.* Thoroughly familiarize yourself with the subject matter and, if possible, with the research results.

3. *Talk over the problem with a few village leaders.* Ask them to help you plan the demonstration. This is an important step because it establishes your liaison with the village; secures leader approval of the project; provides land and other essentials for the demonstration; is an actual teaching opportunity since the leaders are certain to learn more about the practice as they discuss it and help plan the demonstration. It is also helpful because this method *involves more persons* in the demonstration which encourages wide-spread discussion of the project.

4. *Gather all of the materials you will need.* These should include everything the farmer will need in order to apply the practice on his farm.

5. *Plan your presentation step-by-step.* Include introductory and summary portions.

6. *Whenever possible, rehearse the presentation two or three times*—until you are thoroughly familiar with the steps and know exactly what you want to say or do at each step of the action.

7. *When the people are gathered to watch the demonstration explain what you are going to do; why it is important for them to learn the new method;* ask for persons in the audience to help you with different tasks.

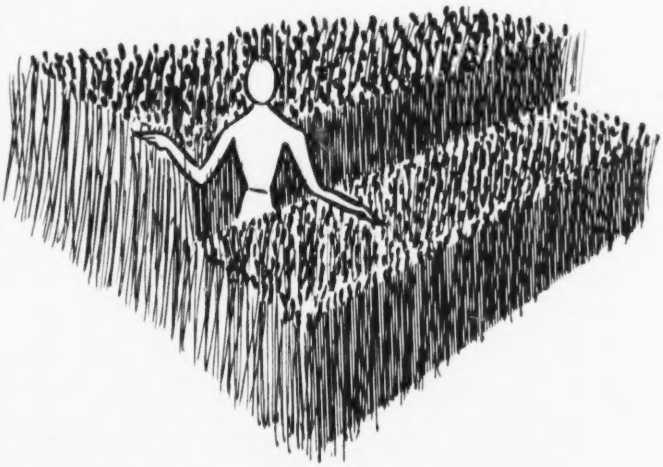
8. *Go through the demonstration.* Explain it step-by-step. Pause to answer questions from the audience. Repeat difficult steps.

9. *Check the effectiveness of your instruction* by having members of the audience do one or more of the steps. In an ideal situation each person would have an opportunity to practice each of the steps in sequence until the skill is thoroughly learned.

10. *Summarize* the importance of the practice, the steps, the supplies and equipment needed. Distribute illustrated folders or other literature showing the step-by-step procedure.

In the method demonstration, actual materials, equipment and people are the best visuals to use.

Often the method demonstration paves the way for the *result* demonstration and in such cases both should be considered as parts separated by time only. An example would be a method demonstration of fertilizer placement to be followed by a result demonstration as the crop matures.



RESULT DEMONSTRATION

"The result demonstration", in the words of the principal of the Himayatsagar Extension Training Centre near Hyderabad in central India, "Is one which shows after a period of time what happened after a practice is adopted. As an example, compost is put on a certain field. Good seed potatoes are planted and cared for. In the next field, no compost is used and poor seed potatoes are used. At harvest time the potatoes are dug in each field at the same time. The villagers have watched all during the planting, growing and harvesting season. They see how much better results are from using better practices. This is a result demonstration."

Comparison is the essential ingredient in the result demonstration. Whether it is a comparison between compost and no compost; good seed and poor seed; fertilizer and no fertilizer; dusting for insects and no dusting—the results are there for all to see and judge.

Advantages of the result demonstration, according to the Himayatsagar principal, are these:

Furnishes local proof of the desirability of adopting a recommended practice.

Is an effective method for introducing a new subject.

Appeals to the eye and reaches the 'show-me' individual.

Provides a good source of information for meetings, new items, pictures, radio talks.

Furnishes cost data and other basic information.

A high percentage of people will understand.

Aids in developing local leadership.

Establishes confidence in the extension worker and in extension work.

In many cases the result demonstration makes the point without human persuasion. An example would be two demonstration plots of corn, side by side, with the older variety yielding only an average of one good ear per plant. The new variety, yielding two ears per plant, does its own persuasion. In such a case the growing plants are before the village farmers during the entire growing season—a continuous demonstration.

As in the case of the method demonstration, there are certain steps to follow that will make your result demonstration more successful:

1. Decide exactly what you want to accomplish.

2. Gather all of the information you can find about the practice.

3. Talk over the problem with the village leaders and ask them to help plan the demonstration and recommend demonstrators.

4. Develop a complete plan of work, showing each required step and indicating who will do what.

5. Select demonstration sites that are centrally located and near a road so people can get there easily.

6. Visit the demonstrators and make sure they are thoroughly familiar with the details of the plan, such as new cultural methods, new harvest techniques, record keeping and measurement of results.

7. Ask village leaders to encourage villagers to be present for the start of the demonstration.

8. Visit the demonstration plots often and hold meetings and tours there as the demonstration progresses. Have the farmers tell the story.

9. Keep records and compare the results with local practices.

10. Refer to the demonstrations in meetings held elsewhere. Write about them for newspapers and magazines. Talk about them on radio.

11. Plan follow-up demonstrations if necessary.

TOURS AND FIELD TRIPS

Tours and field trips are methods of extension teaching which appeal to man's desire to 'go places and see things'. The 'things' to be seen may range from results on small demonstration or test plots to extensive application of new methods on actual farms.

In general, the tour or field trip includes more than one stop—the exact number depending on what the extension worker hopes to accomplish. The field trip for cultivators interested in line sowing obviously will be different from the field trip of government officials interested in observing rural progress.

It might be helpful to think of the tour members as individual cameras, being exposed to several different subjects or to several different angles of the same subject during the course of a day. The exposures are made in a planned sequence and when the individual returns from the tour he has an orderly picture story of the subject permanently recorded in his mind.

Like method and result demonstrations which the tour may or may not include, this extension method offers farmers the opportunity to see for themselves concrete evidence of the value of improved practices.

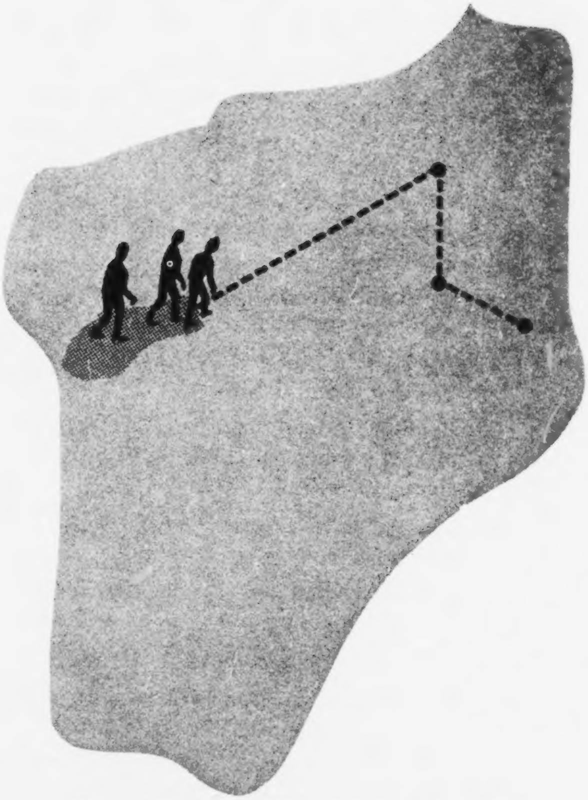
The following suggestions will help you plan and hold a successful tour or field trip.

1. *Decide exactly what you wish to accomplish.* This will be determined by the tour audience, their interests, levels of understanding and your evaluation of their needs.

2. *Work out a detailed plan for the tour well in advance.* This should include sequence of subjects to be studied, sites to be visited, a time schedule for the stops which permits plenty of opportunity for questions and discussion, tour guides and hosts, special audio-visual equipment if needed, transportation if needed and other details.

3. *Go through a rehearsal or 'dry run' of the entire program well in advance.* This will aid you in determining if you have budgeted enough time at the different stops and especially in seeing if you have too many stops scheduled. It also will give you a chance to scout the route to see if there are obstacles either to walking or to vehicle traffic.

4. *On the day of the tour, keep the party together and keep them moving briskly from point to point.* Nothing kills interest faster than stragglers. Make the party as comfortable as possible, taking advantage of shade for tour stops and providing plenty of drinking water. If the tour is longer than just a few hours, your plan should include providing the party with a generous serving of appetizing food.



In general, smaller groups are preferred to larger groups. This is because smaller groups permit more thorough discussion and are not as difficult to control and move about. The maximum number of persons any one tour leader should attempt to manage is 100.

Small portable loudspeakers can be a tremendous aid in keeping the attention of the group, increasing the amount of information imparted to them and in controlling them. Explanations usually are more effective when made by demonstrator-farmers or by farmers using the practices being studied. The extension worker should be prepared however to provide technical, background or interpretive information that may be necessary.

Demonstrations and tours may seem time consuming and in some instances costly, but they present the case in such a clear and obvious way that the audience can hardly miss the message. Considering their heavy educational impact on each individual, they may actually be among the most efficient and economical methods of teaching you can use.

PRESENTATION VISUALS

No uniform method of classifying visuals has really yet been adopted. The classification used in this booklet is an arbitrary one and differs from those in other publications on visuals.

By *presentation visuals* the authors mean those techniques, devices or items of equipment that can be used by a speaker for visual reinforcement as he addresses a group.

The emphasis here is on visual reinforcement in a speaking situation and the section does not include slides, films and other projected visuals. These are covered in a later section. While the implication is that the visuals in this section are customarily used in a group situation, several of the visuals including real objects, specimens, dust sketching and others also are effective in a personal teaching situation.

REAL OR LIVE OBJECTS

Although many children in the United States drink a quart of milk each day, many of them—especially city children—have never seen a cow.

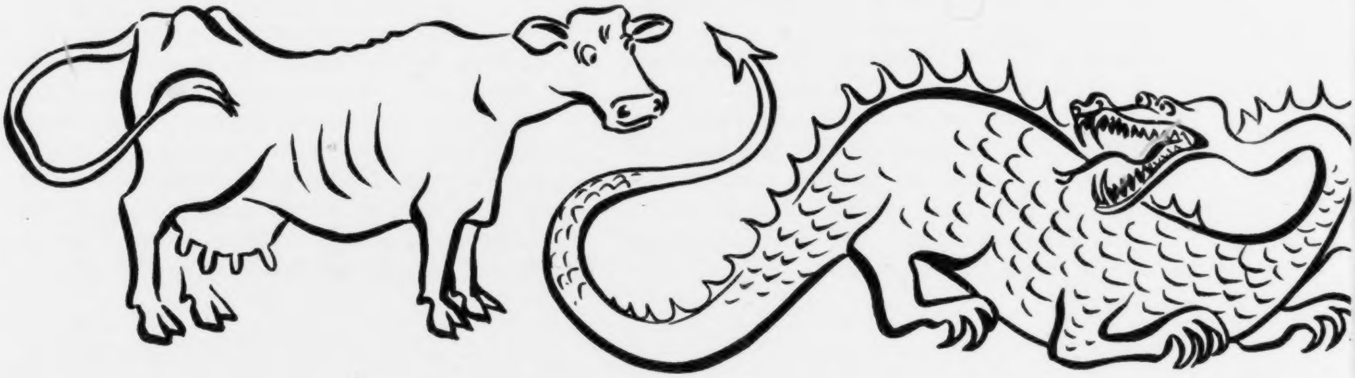
If you were to describe a cow to a child who had never seen one, how would you do it? How would you describe its large size, its pointed horns, its long nose and large nostrils, its long tail, the loud noise it makes? And after your word-description would he picture a gentle cow or a terrible dragon?

To give city children the educational experience of seeing animals and thereby understanding more about their food supply, many city school principals have brought cows to their schools where children can see them, pet them and even milk them. Other schools have taken farm tours to see animals and crops. The point is that once a child is brought face to face with a real, live cow, the picture he gets of the animal is at once clear, accurate and wonderfully detailed. This is the advantage of using as a visual the *real thing.*

What makes the real object so effective as a visual teaching aid is its appeal to the five senses. You can see a cow. You can hear a cow. You can touch her, smell her, taste her milk. No prepared visual—no matter how costly—can compare with the real object for communicating accuracy and detail.

In extension work the number of different objects available for teaching is almost unlimited. Your choice might range from a rooster to a water buffalo; from a vial of serum to a self-propelled combine; from a single rice seedling to an entire paddy.

Remember that the object is not the teacher. You are the teacher. Its purpose is to reinforce your presentation by attracting the group's attention, holding its interest and helping to make the lesson clear.



SPECIMENS

Many of the advantages of real objects described in the preceding section, also apply to specimens. These are in fact, real objects that have been mounted or treated in some special way to *preserve* them. They offer you the opportunity to use the object when it might be seasonally or otherwise unavailable.

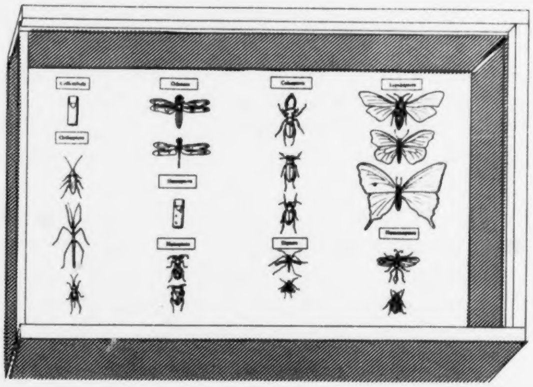
Examples of specimens useful in agricultural extension work include seeds, fertilizers and livestock feed in capped glass jars, weeds, grasses, legumes and crops—dried and mounted on cards, insects pinned and mounted in a box, twigs from fruit trees — illustrating different types of grafts mounted on a board; a vertical profile of soil mounted in a shallow container, a portion of tanned leather showing cattle grub damage.

Almost any real object can be mounted or preserved in some way. Some objects are too large to mount. But even in the case of animals, portions—such as diseased organs—can be preserved in jars of formaldehyde or other preservative. *Preservation* therefore is the key factor. Here are some practical ways to mount and preserve specimens:

In Glass Jars and Vials. Glass jars and vials are excellent for preserving specimens since they are transparent and usually have lids or caps which keep out dirt, insects and mice. Many materials such as grain can be kept indefinitely without special treatment. Materials that decompose in time should be treated with or immersed in a preservative. Ask your chemist or druggist to give you the proper compound.

On Cards. Dried specimens of plant material—weeds, crops, grasses—can easily be mounted and conveniently carried about on sheets of cardboard or woven matting. Some extension workers like to press plant material before mounting. You can press plants in books, between glass, between two boards, bricks or other flat absorbant surfaces. Place the plant between two sheets of paper, thin cloth, or blotting paper before applying pressure. Surface adjacent to the plant must absorb moisture quickly to retain the color and prevent mold.

Plants may be attached with cellophane tape, thread, glue, paste or pins. If sheet cellophane or other transparent film is available you may wish to cover the plant with this material to keep it clean especially if it is to be handled much.



In Boxes. Shallow boxes, partially filled with clean cotton, make excellent containers for specimens. These are especially well suited for specimens of insects and plant materials. Cellophane, acetate or even glass covers will make the boxes even more useful by keeping out dirt and insects. If a cover is to be used, it is well to fill the box as full of cotton as possible before adding the specimens. This brings them closer to view.

On Boards. Thin boards of the sizes required to hold the material are excellent for mounting specimens. For example, a series of corn root systems, washed free of soil, can be permanently mounted on a board with glue, paste or tacks to show the effects of different amounts of fertilizers on root development.

With a little imagination, many other satisfactory methods of mounting and preserving specimens can be devised. Where possible, locally-available materials should be used to reduce costs. Ready-made specimen boxes with glass covers are available at some cost.

Some extension workers have successfully used clear liquid plastic for mounting specimens. The finished specimen is perfectly preserved in natural color and shape in a block or disk of hardened, transparent plastic. Your state agricultural information officer can tell you more about this process and about getting the plastic.

All specimens, regardless of how they are mounted, should be clearly labeled, with all of the important facts included.

MODELS

Young children at play everywhere make tiny houses, hills, roads, animals and even people. They do this in an effort to recreate things they have seen.

Older children in school make simple working models for class study such as the familiar cut-away piston and cylinder which shows how an internal combustion engine works.

Man's interest in models goes back through the centuries — even before the earliest Egyptians who prepared beautiful models of boats and other objects for display and entombment.

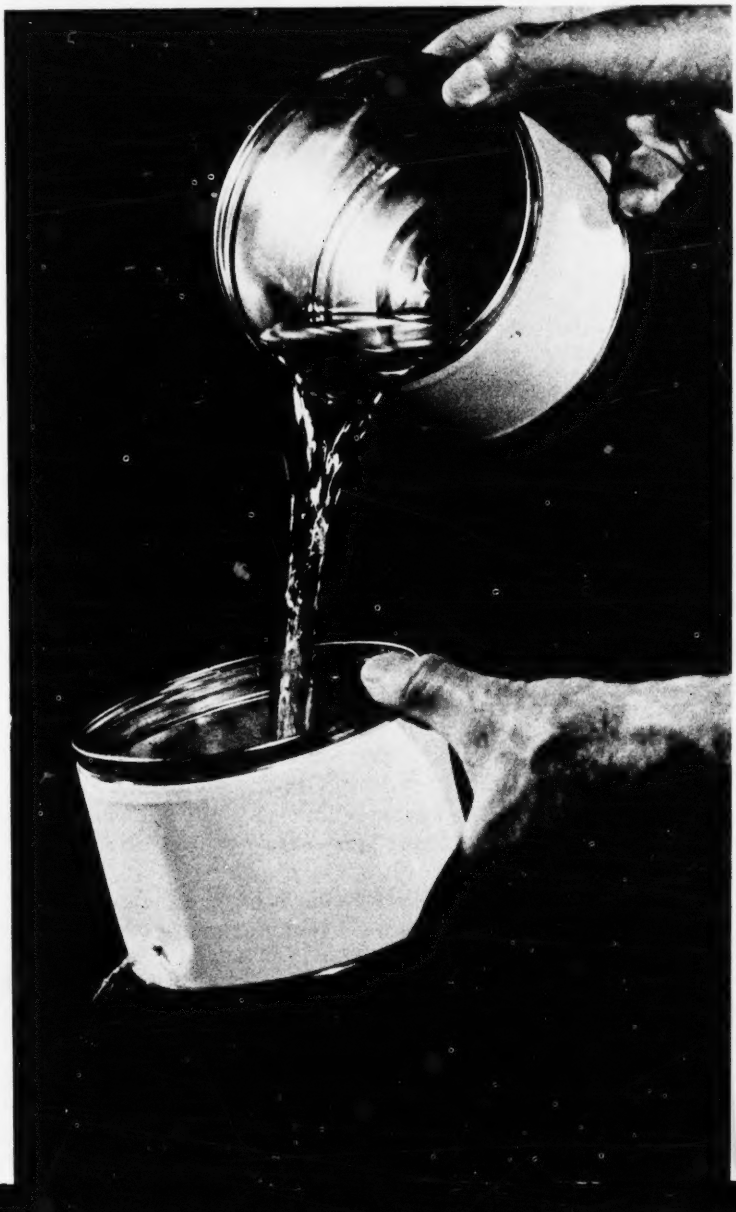
Because models hold a certain fascination for young and old alike and because of their strong visual appeal, they have a definite place in extension teaching.

Let us remember that models are *replicas* of real objects. They may be 'life size'; or they may be smaller or larger than the real objects they represent.

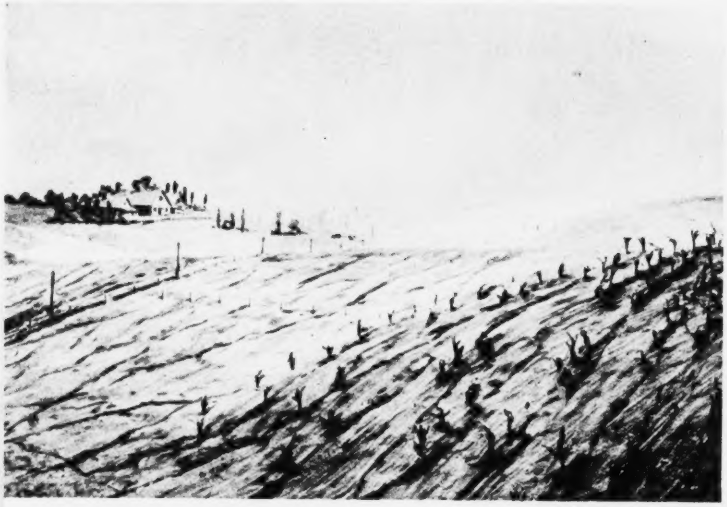
Deciding when and how models can be used to advantage is your job. You will not find this job difficult if you will go through the steps in the *communication process,* outlined earlier.

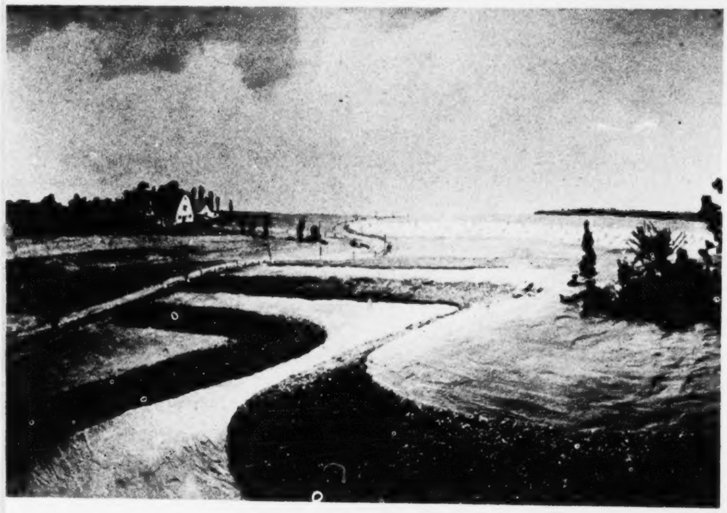
Here are some examples of how models were used effectively to help visualize different ideas:

1. *Problem:* To illustrate how a floodwater retarding dam holds water released by a storm and how the flow of water is slowed to help prevent floods below the dams. *Solution:* Prepare a working model. A coffee can was selected to represent the dam. A hole punched near the bottom represented the controlled volume outlet. A dipper of water represented the sudden rush of water from the storm.



2. *Problem:* To show how soil conservation practices such as strip cropping and terracing control erosion. *Solution:* Construct two terrain models. The first is a farm with erosion. The second shows the same farm after conservation practices are introduced.



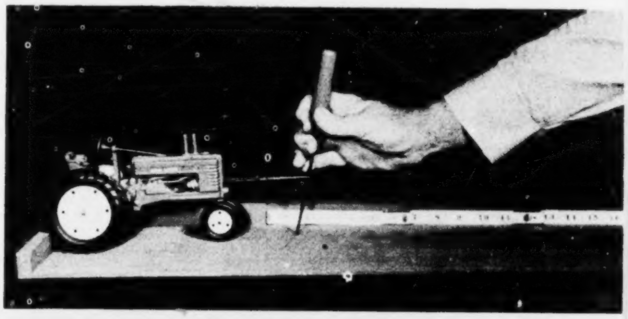


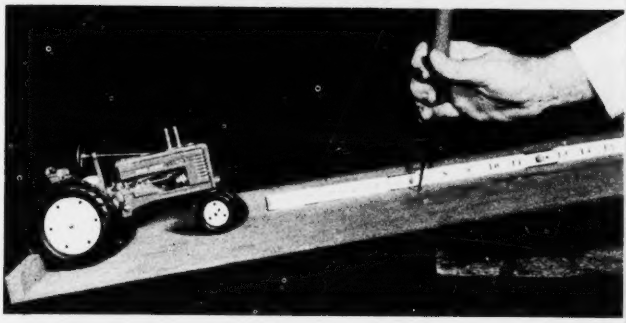
The sky and farm buildings were painted on curved background panels. The foreground was built up with papier-maché, modeled over pieces of wood and wire screening.

Such models or dioramas may be constructed from a variety of materials. If clay is plentiful, this could be used for the terrain. Perhaps a pottery maker could shape and fire it. If soft wood such as balsa is available, the model could be carved from wood sections. Sand, wetted down, or even soil can be used for model building. One very effective model, constructed entirely from soil and displayed at an exhibition in Madras showed a new system for moving water from one rice paddy to another.

For textured effect to simulate trees, bushes, grass, fields and orchards, many different materials may be used. Ordinary sawdust, dyed or natural color and sifted over areas coated with glue, gives the effect of grass and fields. Shredded rubber makes tree foliage and bushes. Natural moss also is excellent for trees. Other texture materials include wild grasses, sand and wire. Buildings can be indicated on the model by using pieces of wood cut to scale. To finish the work, color is brushed or sprayed on. See appendix for formulas for making terrain models.

3. *Problem:* To design a simple inexpensive visual for a lecturer to use to demonstrate that it takes more power to plow or cultivate uphill than it does to plow or cultivate on the contour. *Solution:* Use a model tractor and a rubberband. A rubberband stretches longer when it pulls a model tractor up an incline than it does when the tractor is on a horizontal surface. The difference in the stretch of the band indicates the added power needed for the uphill pull.





Weston Master II
UNIVERSAL EXPOSURE METER
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100
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400
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1600
LIGHT

When actual objects are too small to be seen, an enlarged model can greatly aid learning—if you explain that it is enlarged. In an anti-malaria campaign, one group of villagers watched a demonstration involving the use of a greatly enlarged model of a mosquito. Later, in an evaluation of the teaching effort, the villagers reported that the recommendations were not applicable to their situation because none of their mosquitos were as large as the one the demonstrator used!

To show the inner workings of objects, cut-away or break-away models often are used. These allow the audience to grasp the principle quickly. Plastic transparent models show what happens under the surface. Movements of machinery are illustrated by animated models.

Models are among the most effective visuals you can use. They permit you to illustrate the characteristics or the principles of the real object when it may not be practical or possible to use the real object.

PHOTOGRAPHS

The camera has the ability to condense to a small sheet of film a vast erupting volcano that throws smoke and lava thousands of feet into the air!

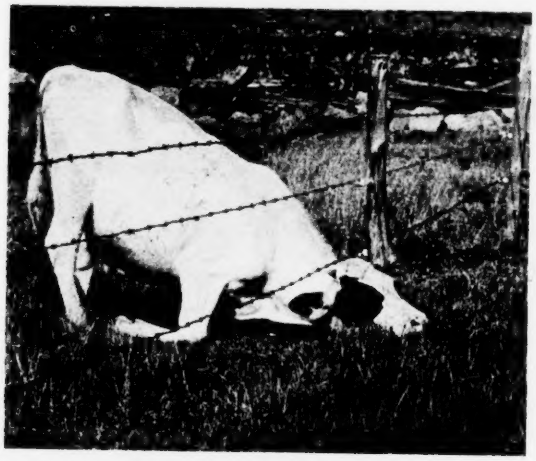
From the film can be made a photograph that can be carried in a man's pocket halfway around the world. When people there look at the photograph, they understand exactly what the distant volcano looks like.

In a photograph people also can see what a new farm implement looks like. They can see the exact spot at which to vaccinate a chicken. They can see the steps necessary to build a new type grain storage bin.

A photograph is an exact visual recording of something. It is among the most versatile and effective of the visuals. It may be used as a presentation aid or as a portion of a display-type visual such as an exhibit or bulletin board. It may be used in a personal teaching situation. It may be mass produced in leaflets and pamphlets or in newspapers and magazines. It may be projected with an opaque projector.

To be an effective teaching aid, a photograph must:

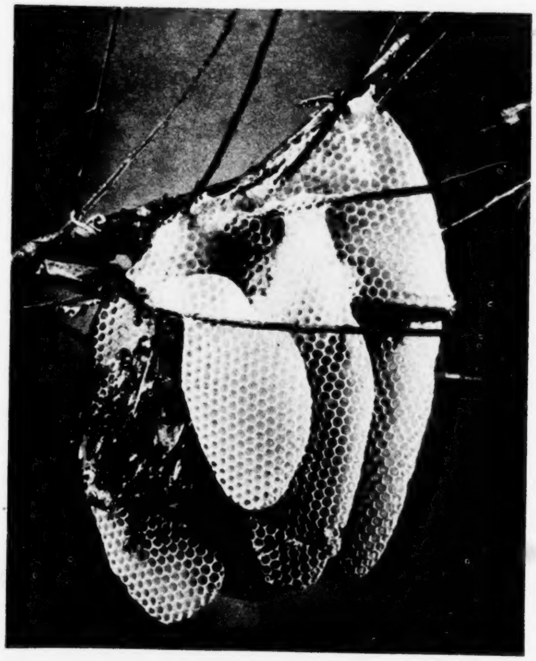
1. Tell a story.



the grass always looks greener on the other side of the fence!

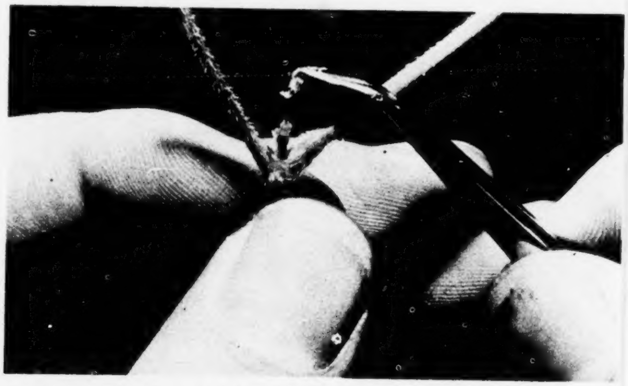
2. Illustrate only one point. If you try to include more than one main point in a photograph, you are likely to confuse the viewer.

3. Have a plain and simple background. This makes the main subject more prominent and reduces the chance of confusion.



4. Show the main subject prominently.

The quality of a photograph depends in part on the person who takes the picture and in part on the person who processes the film. It is essential to take the picture with the proper film, lens opening, shutter speed and composition. Many pamphlets and books are available that can help you learn to take excellent pictures.



The man in the darkroom can make a good picture even better through expert developing, printing or enlarging. Frequently he can eliminate distracting details and through cropping and possibly through enlarging, can make the subject larger or more prominent. Use the best kind of help you can get in processing your photographs. If you, as an inexperienced person are faced with this task, you probably can get help from the proprietor of a camera shop in a nearby town. He will have literature available on film processing and can advise you on supplies and equipment. Your state or national extension service headquarters probably can give you advice and may even give you training.

Many good photographs are spoiled or lost through lack of proper care. A filing system of some kind, perhaps according to subject matter, will not only protect your photographs, but will enable you to find them quickly and easily.

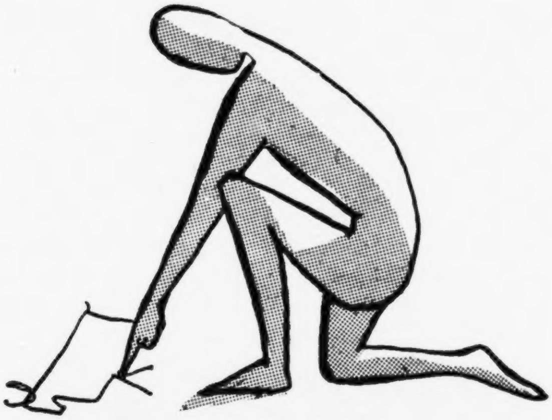
Manila folders or envelopes are excellent containers to use in filing photographs. If moisture is a problem, as in the tropics, store negatives in a dry cabinet. Where electricity is available follow the suggestions in Eastman Kodak Company's leaflet—*How to Store Films in the Tropics.*

DUST AND MUD SKETCHING

The packed soil of the village street was still damp from the morning's heavy rain as villagers crowded around the young extension worker who had come to explain a new land reform program being introduced in the area.

Taking a pointed stick, he marked a large square in the damp soil. "This is your village," he explained. "And here are the fields of one of your cultivators," he added. He then marked off several small patches in different locations around the village to represent the numerous small holdings of the average cultivator.

Then he marked off a single large rectangle totaling in area approximately the same as the sum of all of the tiny patches. He explained how cooperative land consolidation could provide each cultivator with a larger, single, higher-yielding unit to farm. The plan would eliminate the many tiny inefficient patches with much of their productive area taken up by earthen border strips and located in all directions from the village.



In sand, dust, soil and mud, nature has provided us with highly effective, inexpensive and readily available visual materials. Using a pointed stick, a sharp stone or one's own finger, it is possible to illustrate many different ideas such as new layouts for villages, expandable-type houses and farmstead arrangements showing the relocation of livestock, poultry and equipment sheds away from the family living quarters.

Remember, there is far less chance for misunderstanding if your people can *see* the thing you are trying to explain. Sand, dust, soil and mud sketching can help you visualize your subject.

CHALKBOARDS

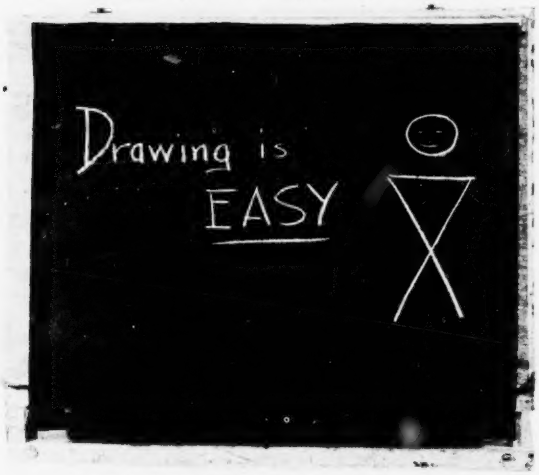
Chalkboards are portable surfaces for writing and drawing. They can be carried easily from one place to another and set up quickly. These features make them highly useful items of visual equipment.

As an 'active' visual, the chalkboard offers you the opportunity to write words and draw pictures and diagrams which can greatly add to the effectiveness of your presentation.

The uses for a chalkboard are limited only by your imagination. You can summarize the main points of a talk; write down key words for emphasis; sketch diagrams of irrigation systems, farm building arrangements and crop rotations; draw pictures of people and animals to add interest to your talk; write out directions for mixing and using chemicals for controlling locusts; and develop a story or lesson point by point.

Using a chalkboard not only increases audience interest and understanding but speeds learning and gives the teacher increased poise and self confidence.

There are two basic kinds of chalkboards—roll-up and rigid. The roll-up type is lighter and more compact and therefore is more portable. It may be carried easily by hand, by bicycle or on horseback. The rigid type is more durable and is easier to use although its size and weight make it almost necessary to transport by car or truck.



Roll-up chalkboards, usually are made of heavy cloth, canvas or oil cloth, coated with chalkboard paint slating. If chalkboard paint is not available, you will want to experiment with various flat paints to which is added a small amount of pumice until you find a combination that is satisfactory.

When using the roll-up chalkboard, place it against a smooth flat surface such as a wall or up-turned table so that chalk pressure can be applied at any point on the surface to give a good impression.

Rigid chalkboards can be made of plywood, metal, pressed wood (masonite), fiberboard or even heavy cardboard. Apply two coats of chalkboard slating or other dark colored flat paint if the chalkboard slating is not available. Sand lightly after each coat.

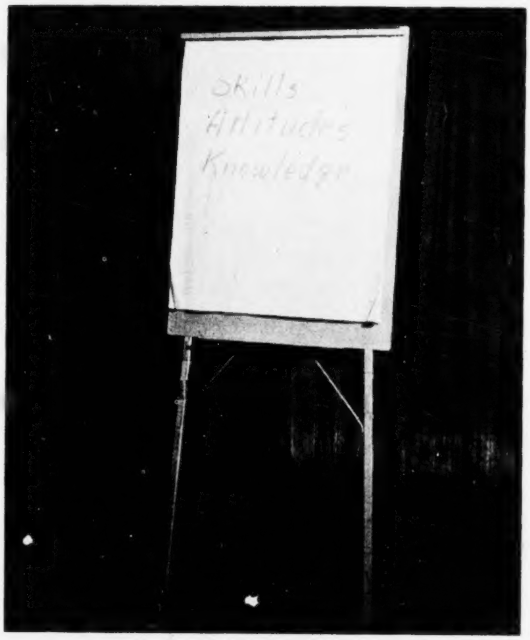
Before using your chalkboard, condition it by patting over the entire surface with an eraser or duster filled with chalk dust. This will fill the pores with dust and will prevent permanent impressions which otherwise may occur the first time you use it. Metal handles or leather or rope straps will make it easier for you to carry your rigid chalkboard.

Yellow chalk on dark green paint gives better visibility than white chalk on black paint.

It should be remembered that a chalkboard talk is basically a *progressive story*. Bit by bit, information is presented in a logical and interesting fashion so that at the end of the discussion the 'whole picture' is clear.

PAPER PADS

Paper pads are another form of portable surface for writing and drawing. The pads are made from unused newspaper stock, white butcher paper, brown wrapping paper or any rough textured paper. They are held together at the top like a tablet by wood or metal clamps. Often the clamps are attached to a light portable easel which holds the pad in position for writing or drawing.



If the pads are to be used for drawing or writing in front of an audience a stiff backing makes writing easier.

The advantage of the paper pad is that a clean writing or drawing surface is available merely by turning over a sheet already used. Another advantage is that it is possible to review material written on the sheets simply by turning earlier sheets back into view. This represents an advantage over the chalkboard which must be erased before new material can be written or drawn.

Lightly penciled notes on the surface are easily seen by the lecturer and act as an outline for important data given verbally. These notes are invisible to the audience.

A common size for the paper pad is 24 inches wide by 36 inches high. This is large enough for an audience of approximately 50 persons. Larger or smaller pads may be prepared as needed according to the size of the audience. Colored chalks, heavy wax crayons and felt ink pens work well as writing instruments, providing a high degree of contrast and visibility.

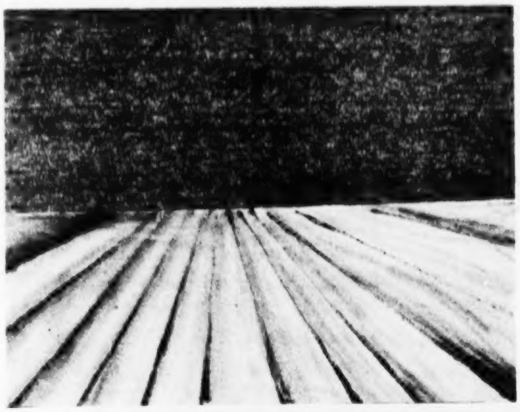
Although the pad is commonly used for freehand work, it is possible to prepare portions of the message beforehand. For example, illustrations can be sketched or traced on a sheet lightly in pencil. These lines then serve as guide lines for bold strokes with colored chalk or crayon, giving the impression of skillful freehand drawing. This technique gets attention and holds the interest of the audience while you are covering the points in your presentation.

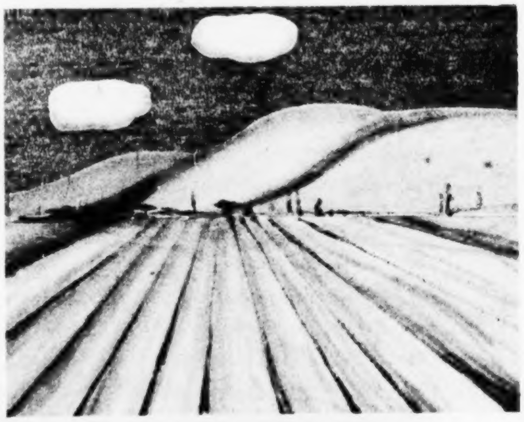
As is true in using all visuals, effective use of the paper pad requires careful planning and preparation. Again, only your imagination limits what you can do with this excellent visual.

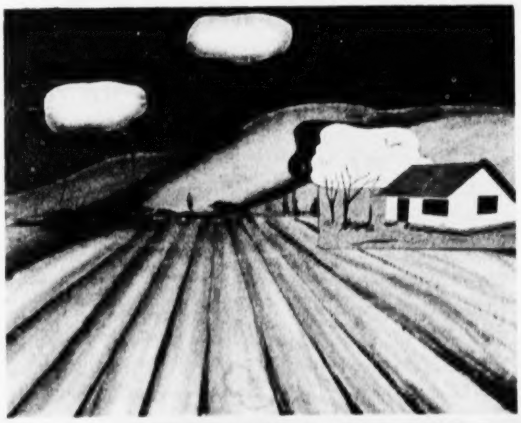
THE FLANNELGRAPH

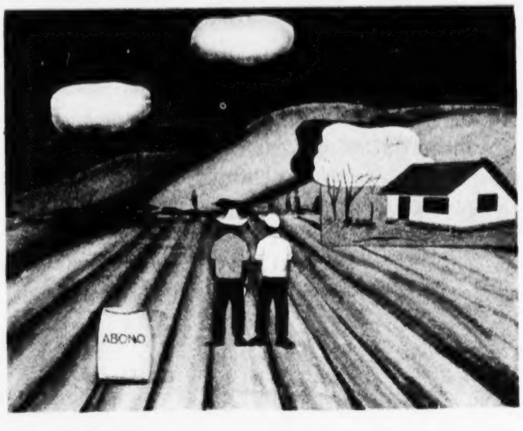
The appeal of the flannelgraph is in its action and suspense. In some ways it is like a drama. It has a story or plot. It has a background or set. It has parts that can be moved about—the actors.

Like a drama, the flannelgraph story unfolds before your eyes. You both see and hear the story. The action of the moving parts attracts your attention. The suspense of the unfolding story holds your interest.









The flannelgraph is a simple device consisting of a nearly vertical surface of flannel or other rough-textured cloth and symbols or parts, also backed with rough-textured cloth, sandpaper or flocking. These are used to visualize the story. The flannelgraph works on the principle that one piece of rough-textured cloth will adhere or 'stick' to another. The cloth-backed parts therefore stick to the cloth of the vertical surface and stay there as if by magic until they are removed.

The surface cloth may or may not be mounted on a permanent backing. Some extension workers prefer to carry with them only a piece of folded or rolled-up flannel along with the symbols or parts. When they arrive where the lesson is to be given, they pin the flannel to a flat surface such as an up-turned table, wall or fence.

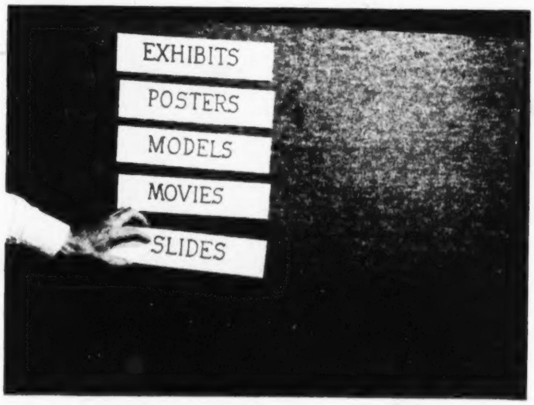
Others prefer to have the flannel permanently mounted on cardboard, plywood, metal or some other rigid surface. While this usually looks neater, it does present a problem in transportation because of its size and weight. This type usually should be considered only where the equipment is to be kept at a central location such as an extension training center, a school, extension headquarters or where motor transportation is available.

Some extension workers who travel on foot or bicycle prefer to take only the flannelgraph parts with them. When they arrive where the lesson is to be given, they borrow a blanket, a piece of rough-textured cotton cloth or perhaps a mosquito net. This is draped over an up-turned table, bed, fence or is attached to a wall to provide support.

The size of flannelgraph to use depends on the size of the audience. A flannelgraph 30 by 40 inches can be used to tell a story to about 150 people if the parts are sufficiently bold. Experience will soon tell you whether or not your flannelgraph is of satisfactory size. Many extension training centers and headquarters find it convenient to keep several different sizes to accommodate different sizes of audiences.

Where permanent flannelboards are needed you will want to consider making them as folding units. A folding flannelboard is more compact, requiring less room for storage and transportation. Since the textured surfaces fold together, they keep cleaner and are less apt to be torn or damaged than those with a single rigid backing. Either metal or cloth hinges can be used on the folding board.

The material for the surface may be wool or cotton flannel, felt or any rough-textured cloth. Cotton flannel probably is the most satisfactory material to use considering its low cost and because of its fuzzy nap which insures good adhesion between surface and parts.



Darker colors usually are more satisfactory because they do not show soil and provide excellent contrast for light colored parts. Dark greens, blues and blacks are particularly good colors for background surfaces.

With a board 30 by 40 inches in size, the parts should be approximately six to eight inches high, although larger parts can be used. It is important not to make parts too small, especially where details of expression or words are important in the story. The parts may be silhouette cutouts, artist or simple freehand drawings, pictures from magazines or newspapers, photographs, portions cut from photo enlargements, various-shaped forms with words printed on them and other kinds of illustrations.

The parts work best when they are flat and rigid. Illustrations on thin paper and photographs tend to curl up and fall off

the flannelgraph. This can be avoided by mounting them on stiff, light cardboard with cloth backing attached to the cardboard.

Cloth backing on each part is essential. This is the feature that gives the flannelgraph its magic. Without backing, the part would merely slide down the vertical surface. With backing, the part will stay indefinitely where you place it. Cotton or wool flannel, felt, or almost any kind of rough-textured cloth can be used for backing the parts, as they can be for the display surface.

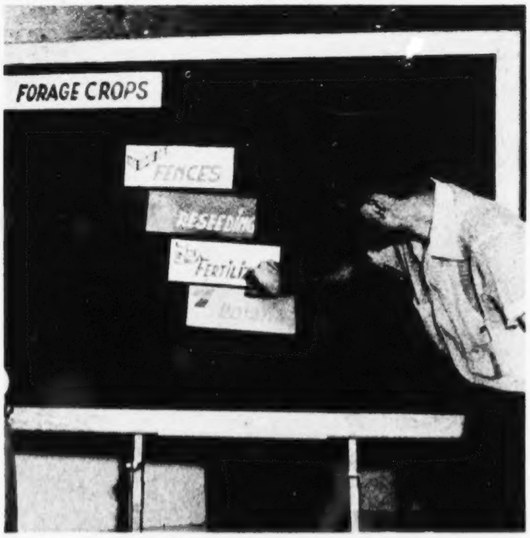
Use only enough glue to hold the cloth to the surface part. Too much glue will soak the backing cloth and cause the fibers of the cloth to mat and lose their ability to stick to the flannel. In some countries, flocked paper in a variety of colors is available and is excellent for making parts. Three-dimensional objects may be made of sponges, balsa wood or other light material if backed with cloth or sandpaper.

In preparing to use the flannelgraph, it is best to tilt the surface back slightly so the parts will not topple down. It is well to keep the flannelgraph out of the wind because a sudden gust can blow parts off, distracting the audience and perhaps destroying the effect of your presentation.

The first step in planning your flannelgraph presentation is to decide exactly what you want to tell your audience. The story should be developed in a logical, step-by-step sequence. It should be kept as simple as possible, covering only those parts that are important and omitting unimportant details.

Then you are ready to visualize the important points in your story. This is where you decide what kinds of parts are needed and what they will illustrate. If you have an artist or photographer to help you make the parts, you are fortunate. Most extension workers do not have such help and must plan and make their own parts.

It is well to practice your presentation two or three times before you give it before an audience. This will help you decide just when to place a part on the flannelgraph to illustrate a point. You will also find that you need no notes for your presentation since each part, if arranged in sequence of use, will serve as an adequate reminder of what to say.



Some persons make the error of standing in front of the flannelgraph. This blocks the view and may irritate the audience since they are interested in looking at the parts and in seeing the story. With practice you can learn to pick up a part, apply it quickly and step to one side, continuing your story in words and pointing if necessary, to the part from the side.

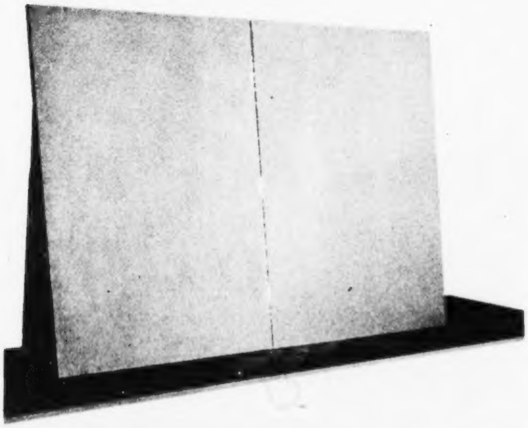
Many extension workers find it useful to save certain parts that can be used over and over in different stories. Examples of frequently needed parts are pictures or drawings of people, animals, houses, crops and machinery.

Wherever possible store the parts of the presentation in folders arranged and numbered for step-by-step presentation. This assures a smooth logical presentation.

MAGNETBOARDS

Magnetboards differ from flannelboards, discussed in the preceding section, only in construction. Their use as a visual teaching device is very similar to the flannelgraph. The size also is similar.

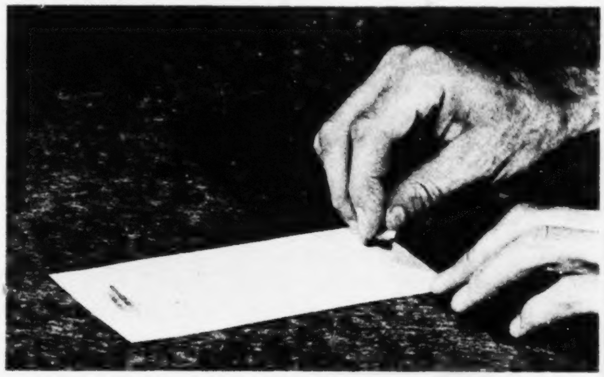
Instead of cardboard, plywood, or pressed wood backing however, the magnetboard must have a sheet iron backing to attract the small magnets that are used to hold up the parts.



Twenty-eight guage sheet iron usually is used for the backing. This is light enough to carry yet is durable enough to stand the wear that visual equipment gets in normal use. Galvanized iron window screen also works fairly well if it is properly framed to make it rigid. Conventional window screen with open spaces about 1/16" apart will not hold magnets as well as solid metal. In some cases however, lightness is more desirable than holding power. It is well to frame the sheet metal board to protect edges from bending and to avoid injury from sharp corners and edges. Either wood or metal may be used for the frame.

In designing your magnetboard, you may want to consider the advantages of a folding board. This will reduce its size for transportation and storage. Handles of metal or leather will make it easier to carry.

Since paint does not interfere with the magnetic attraction, you may paint your board to provide contrast between the background and the parts and to avoid rust damage. The paint most commonly used is chalkboard slating and the board therefore can double as a magnetboard and chalkboard.



Small magnets are glued, taped or fastened with wax to the backs of the parts. When the parts are placed on the surface of the board, the attraction between the magnets and the metal of the board hold the parts in place. Wind will not blow the parts from the board.

The same principles apply in using the magnetboard as in using the flannelgraph, discussed in the preceding section. Again, the main advantages are action, suspense, high interest and the opportunity to develop your story step-by-step.

Because of the weight and size of the magnetboard, it is not practical to hand-carry it for great distances. It is an excellent item to have at a central headquarters such as an extension training center. Generally it can be used in the field only if motor transportation is available.

FLASH CARDS

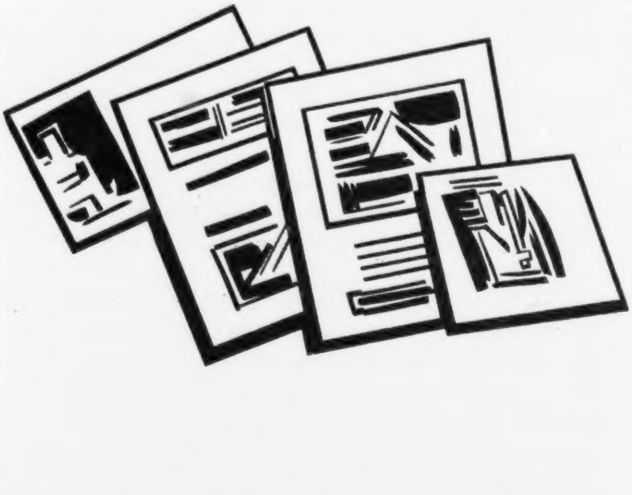
Flash cards are brief visual messages on poster board cards, displayed to emphasize important points in a presentation. They can be carried easily, used in areas with no electricity and can be made quickly and inexpensively from local materials. They are easy to use and help a speaker forcefully emphasize the main points of his talk.

As with the flannelgraph and magnetboard, the flash card series should be planned to support your presentation step by step. The cards actually summarize visually the important ideas you want your audience to remember.

Usually it is best to limit the number of cards to 10 or 12 for any one talk. To plan your cards effectively, first study your talk. Select the main thoughts you want to impress on your audience. Then think of a picture to effectively illustrate each of these thoughts or ideas.

The pictures to put on your flash cards can be simple drawings, cartoons, large photographs or even large illustrations cut from magazines or newspapers. Make sure that the illustrations are large enough for your entire audience to see. Sometimes you will need words to supplement illustrations to give full meaning. But the best flash cards are those that need few or no words.

The use of words will depend on your audience's ability to read and understand quickly the words you use. Do not use complex illustrations. Remember that each member of your audience must be able to understand the illustrations quickly and easily.

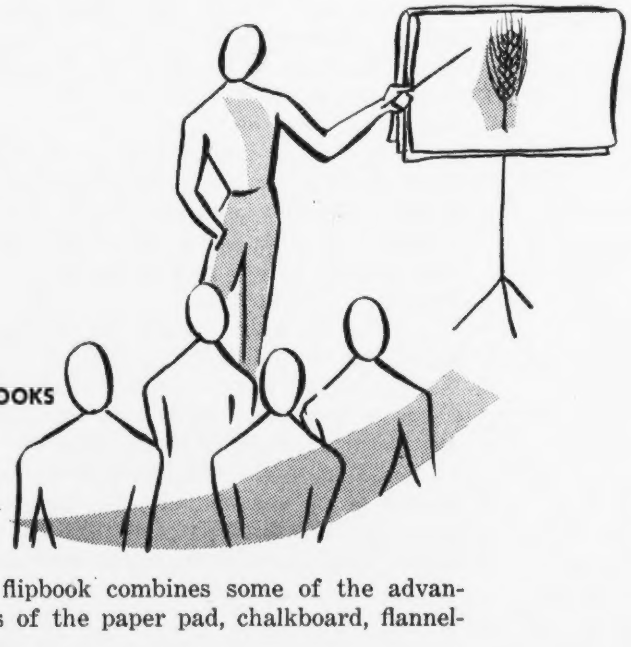


Size of the cards depends on the number of people in your audience. They should be large enough so each person in the back row can see them plainly. Use the rule—an object 1 inch high can be identified from 32 feet away. For groups of 30 to 50 people, use cards at least 22 x 28 inches. For very small groups, cards as small as 9 x 12 inches may be used.

Color has great attention-getting value so use it. Drawings, captions and colored poster board all offer opportunities to use color. Select colors to fit the backgrounds to provide good contrast. Use show card paints, wax crayons, colored India inks or water colors in the strong colors—yellow, green, blue, red or black.

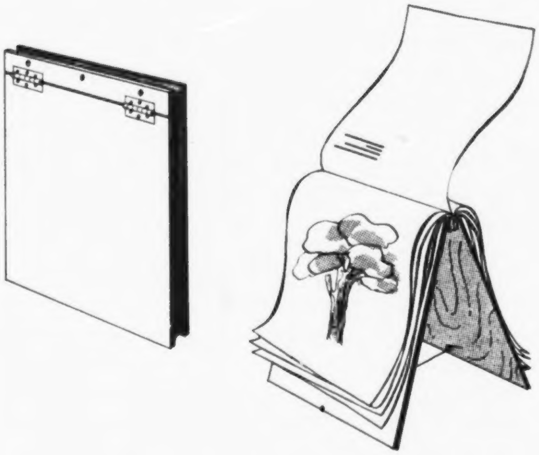
Small flash cards used with small groups may be held in one hand. To change the card to illustrate a new point, simply slip the front card to the back of the set.

Where larger flash cards are used, you may find it convenient to place the cards on an easel. To change the card to illustrate a new point, remove it and either lay it face down on a nearby table or slip it behind the set.



FLIPBOOKS

The flipbook combines some of the advantages of the paper pad, chalkboard, flannel-



graph and flash cards, discussed in the immediately preceding sections. It is used to develop a story or a lesson in a progressive, step-by-step sequence which makes learning easier.

Some flipbooks are made with paper pages fastened between two hinged covers. The covers fold back, forming an easel or stand. A string, attached to the bottom of one cover fits into a groove in the other and holds the book in an upright position. Each sheet of paper has a sketch or words to tell a portion of the story. The pages are turned back or 'flipped', to expose the next picture. A simple form of flipbook can be made by merely stapling or sewing sheets of paper together at the top.

It is possible to use a flipbook to show steps in producing a crop. One page might show how land is cleared. The next might show tilling—the next fertilizing. The next pages would show planting, weeding, growth and harvesting.

The drawings may be made with chalk, crayon, India ink, water color or paint. Notes may be written on the backs of the pages to guide the speaker as he discusses the picture exposed to the audience.

It is possible to increase the usefulness of a flipbook by painting the inside of one cover with chalkboard slating and covering the inside of the other cover with flannel. This provides greater variety in visual presentation by permitting you to draw pictures or write words with chalk or to use flannelgraph parts to introduce or summarize the story. Other variations also are possible such as magnetboard backing and legs.

Complete details on flipbook construction are available in Publications No. 1 and No. 3 of "Visual Aids in Agriculture Extension", published by the Inter-American Institute of Agricultural Sciences, Turrialba, Costa Rica.

PULL CHARTS AND STRIP TEASE CHARTS

These two presentation visuals are closely related in their use to chalkboards, magnetboards and the flannelgraph. They enable the speaker to present information bit by bit or step by step. They have great suspense value which aids in holding attention and building interest.

Some speakers like to use pull charts and strip tease charts to summarize points at the conclusion of a talk. This helps the audience remember key ideas and maintains interest to the very end of the presentation.

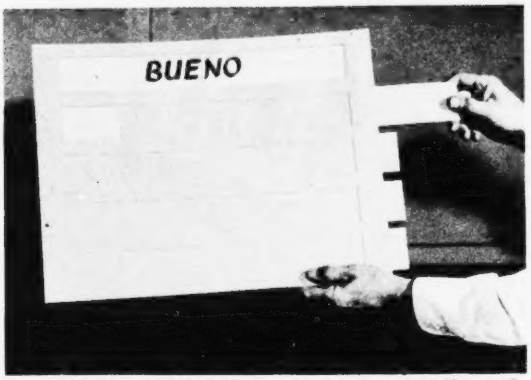
Pull Charts

To illustrate construction of the pull chart, let us assume that you wish to visualize five certain steps in a process. First, cut a piece of cardboard the size that you wish the finished chart to be — say 16″ x 20″. Next cut strips of cardboard 1″ wide and glue them along the top, bottom and left edges of the base card. This leaves exposed 14″ vertically by 19″ horizontally of the base card.

Next cut and glue on horizontally four 1″ strips—spaced 2″ apart vertically—so there are five even spaces of 2″ x 19″ exposed.

The five steps should now be lettered in the spaces with letters not more than 1½″ high. Letter in the top space first and work down.

Now cut another piece of cardboard the same size as the base card (16″ x 20″) in either the same or a contrasting color. Mark lightly in pencil a border of 1¼″ around the new card. Measure down from the top 2¾″ and draw a line parallel to the top. Cut the resulting rectangle (17½″ x 1½″) from the new card. Repeat for the four remaining spaces.



Then using the same color cardboard, cut five strips slightly less than 2" x 20" long. Slide them into the spaces from the right edge and make sure they slide easily and smoothly. Now apply glue to all of the strips attached to the first card. Apply over these the second card from which has been cut the five 17½" x 1½" rectangles. Allow to dry and insert the 2" strips of cardboard so they cover the words.

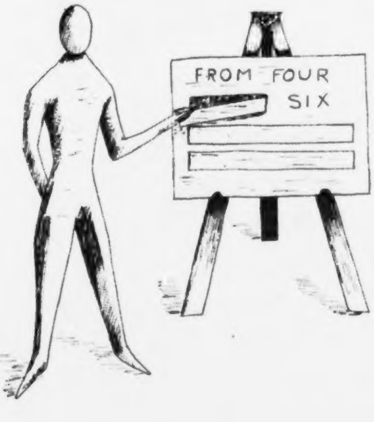
As each strip is removed, the hidden words are exposed. The speaker is thus able to control the amount of information seen at any one time by his audience, the order in which it is seen and the length of time it is seen.

As explained earlier, the technique is particularly useful where the speaker wishes to tell a step-by-step story. The technique may be adapted effectively to line charts discussed in the section that follows and to animated illustrations.

Since it takes time to prepare, the pull chart probably should be considered only where several repeat performances of the presentation are to be made.

Strip Tease Charts

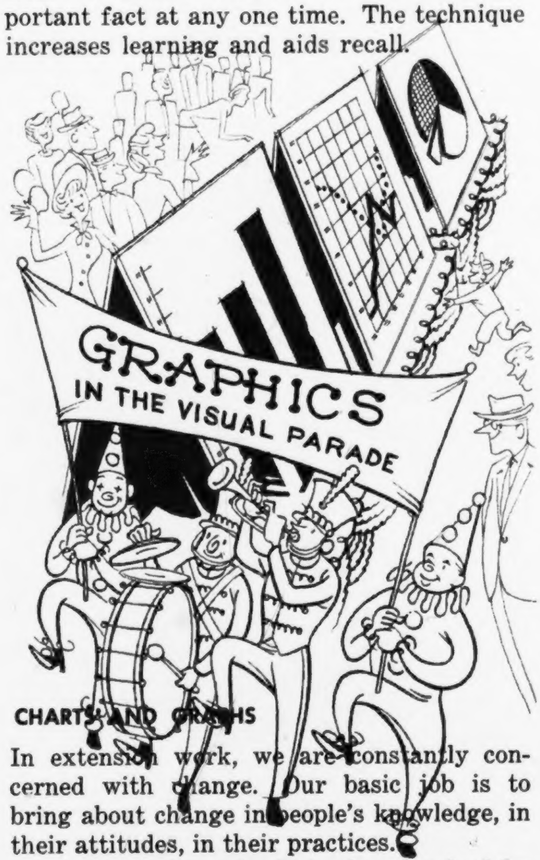
As is true in the case of pull charts, the appeal of the strip tease chart is in its suspense. It 'teases' the interest and imagination of the audience.



The information on the chart is covered with paper strips to which has been applied wax, tape or other tacky substances at each end of the strip. Pins or tacks also can be used.

As the speaker wishes to visually reinforce a point with words or symbols, he removes the appropriate strip of paper. It is possible to add considerable interest to the presentation by removing the paper with a dramatic flourish.

The strip tease chart adds sparkle to what might otherwise be a drab presentation. It centers attention on the most important fact at any one time. The technique increases learning and aids recall.



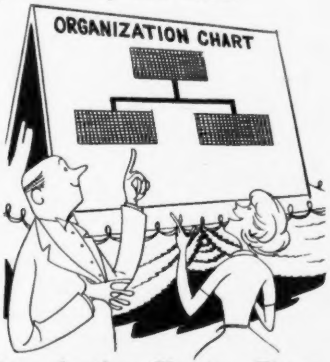
CHARTS AND GRAPHS

In extension work, we are constantly concerned with change. Our basic job is to bring about change in people's knowledge, in their attitudes, in their practices.

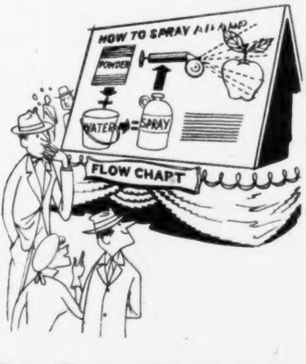
Agriculture itself is characterized by change. Crop yields vary from one year to the next. Weather conditions are different this season from last. Costs of labor are higher or lower this year than a year ago.

During a presentation it often is useful to be able to show or compare changes that have occurred; or to show various kinds of relationships; or to bring to life facts which while important, may by themselves lack dramatic appeal.

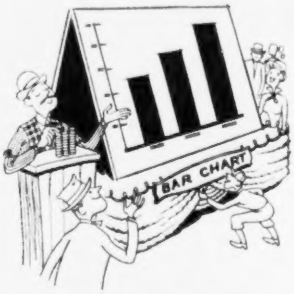
Charts and graphs can help you communicate this often difficult, often dull subject matter in interesting and effective ways. Charts and graphs are pictures of relationships and changes. Here are some of the more common types along with illustrations showing how they are used.



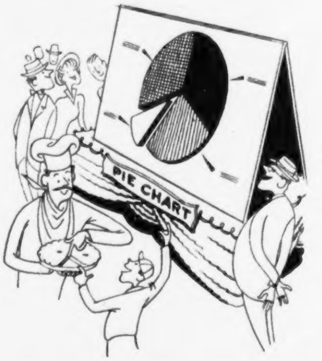
Organization Charts: These are diagrams used to show organizational or administrative relationships. Boxes connected with lines show levels and lines of authority. You could use organizational charts to show administrative relationships in a ministry, an extension service or a university.



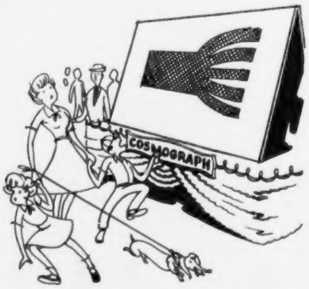
Flow Charts: Sequence in time, process or simple progression can be shown by the flow chart. Such steps as mixing and applying spray to apple trees may be visualized as in the accompanying illustration.



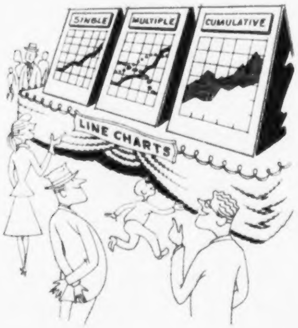
Bar Charts: These are used to compare quantities at different times or under different circumstances. They are composed of measured blocks spaced along a clearly marked scale. The effect of fertilizer in increasing crop yields on test plots in three successive years might be shown as in the accompanying illustration .



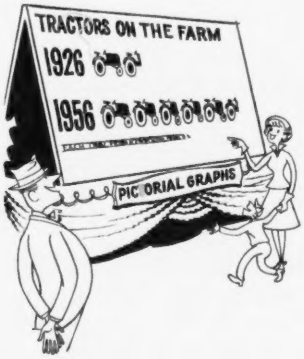
Pie Charts: These are used to show how several parts make up the whole. A pie chart such as the one here might be used to show the relative proportions of different crops produced by a country. Each section of the pie should have its own color. A color key or code in the margin will help the audience remember what the different sections represent.



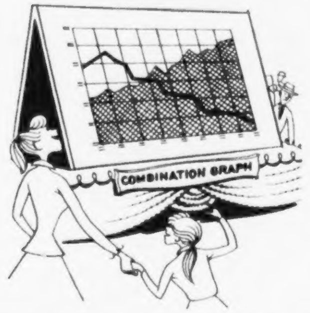
Cosmographs: These are used for the same purpose as a pie chart—to show how a whole is divided into parts.



Line Charts: These are particularly useful in showing trends and relationships. A single continuous line may represent growth or expansion. Multiple lines may show the relation between market price and quantity of a farm product. A cumulative line chart may show relation and trends between production costs and market price.



Pictorial Graphs: To give the viewer a vivid picture and to create a rapid association with the graphic message, cartoons and other types of illustrations may be used. Each visual symbol may indicate quantity as shown when you compare the number of tractors on farms in different years.



Combination: Most charts and graphs contain only two elements such as time and amount, amount and percentage or time and percentage. Sometimes it is necessary to introduce a third element as shown in the accompanying graph which shows time, amount and price. Use combinations with caution and be sure they bear a true relationship. Otherwise they may confuse your audience.

Here are some suggestions to help you make effective charts and graphs:

Keep them simple. Develop only one idea. Include only important detail.

Keep to the fewest comparisons possible. Too much data is confusing.

Allow plenty of space. Use large sheets or board. Don't crowd them with unnecessary detail.

Maintain a logical order in presenting figures—from large to small or small to large.

Make charts and graphs pleasing to view. Use good proportions. Keep style consistent with other visuals used.

Use symbols, words or colors to explain the graph.

Avoid perspective drawing for comparisons. They often distort relationships and confuse the viewer.

Use lines and bars in only one dimension. Otherwise viewers cannot accurately compare relative areas or volumes.

Compare like units. Do not confuse or mislead the viewer by comparing unrelated units.

Titling

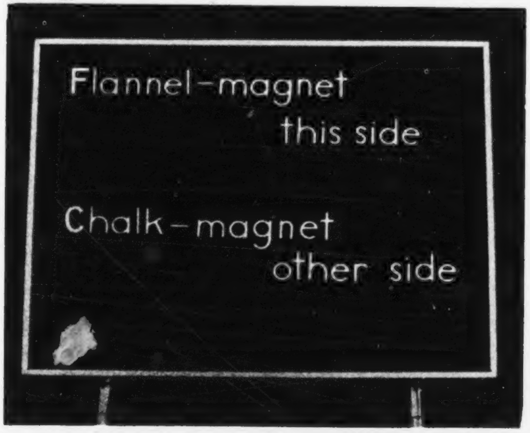
Charts and graphs usually are more easily understood when they are titled with key words. The title must be readable and must mean something. Words also can be used to accent certain parts of the diagram. But in either case, titles and sublabeling should be held to a minimum.

Titles for 8 x 10½ inch sheets should be about one-half inch high. For a 30 x 40 inch chart, the height should be about 2½ inches. Labels, legends and codes can be smaller.

COMBINATION VISUALS

One of the most interesting aspects of visual teaching is the ingenuity and originality that can be expressed with each problem that presents itself for solution. Each of the preceding sections has dealt with individual methods that have been tried and proved useful in specific situations. The fertile mind will consider these methods only a beginning.

Many problems will call for combinations of these methods that more aptly answer specific situations. Combinations of chalkboards, magnetboards and flannelboards are possible. A wood frame to which is tacked a light sheet of iron such as 28 gauge, may be painted with chalkboard paint and be used either as a magnetboard or as a chalkboard. In other cases the metal-covered frame can be entirely covered with flannel to make a combination flannel-magnetboard.



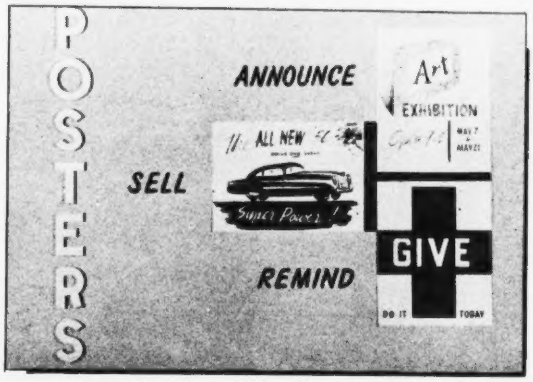
Flipbooks may include combinations of flannelboard and chalkboard, giving three possible uses in one item of equipment. Flipbooks also can be mounted on a light frame covered with sheet iron to make a magnet board. Many such combinations are possible. The possibilities are limited only by the imagination and ingenuity of the teacher.

DISPLAY-TYPE VISUALS

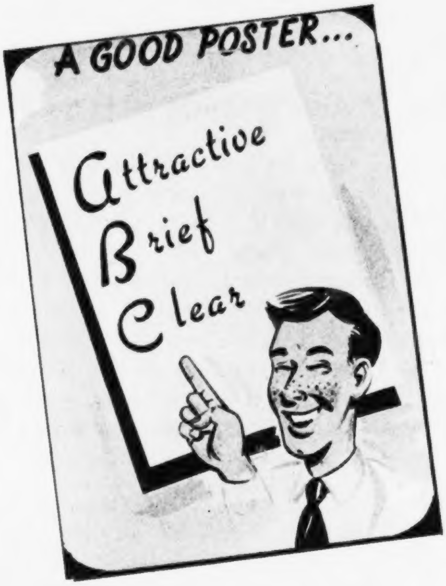
The preceding sections discussed visuals that can be used by individuals in group teaching situations. This section covers visuals that 'stand on their own feet'—visuals that may be put up and left unattended to deliver a message for all to see.

POSTERS

A poster is a sheet of paper or cardboard with an illustration and usually a few simple words. It is designed to catch the attention of the passerby, impress on him a fact or an idea and stimulate him to support an idea, get more information or take some kind of action.

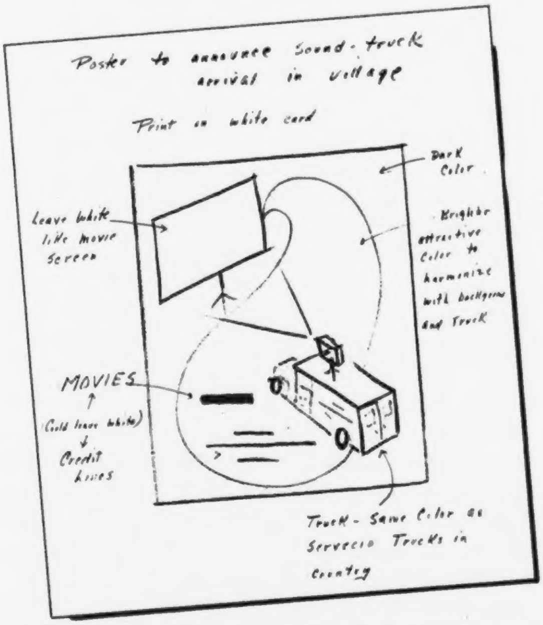


People do not walk around studying posters. They look at posters the same way as they look at other objects—trees, birds, houses, cows, other persons. Usually a brief glance is as much as the average person gives an ordinary object—long enough only to identify it. If something about the object catches his attention or stimulates his interest, the passerby will look at it longer. The design and use of posters as visuals in extension teaching are based on this principle.


A GOOD POSTER...
Attractive
Brief
Clear

Since a single glance may be all your poster will get, the message must be simple and clear. Details and wordy sentences have no place. Here are a few suggestions that will help you design more effective posters.

1. Decide exactly who your audience is. Decide exactly what you want to tell them. Decide what you want them to do.


Poster to announce Sound-truck arrival in village
Print on white card
Dark Color
Leave white like movie screen
Brighter attractive Color to harmonize with backgrnd and Truck
MOVIES
(Could leave white)
Credit Lines
Truck - Same Color as Servecio Trucks in Country

2. Put down on a sheet of paper words and rough pictures that express your message simply and clearly.

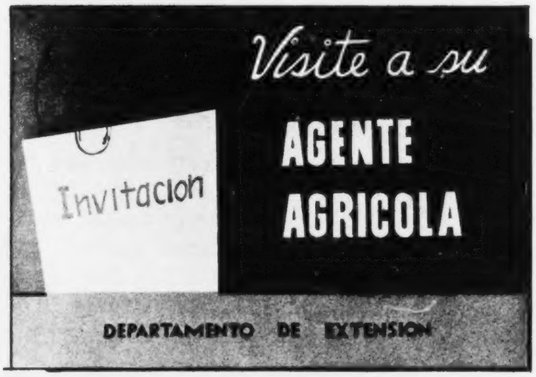
3. Try to put your message into a few words—a concise, striking slogan. Visualize or put into picture form the most important central idea in the message. Remember that words and picture must be seen in a glance and must stimulate response by the viewer.

4. Rough out your poster in small scale—1/8 or 1/4 actual size. If you have available the services of an artist, he can produce an excellent finished poster from your original rough sketch.

Other suggestions for attractive effective posters are these. Use plain, bold lettering and lines. Use color to attract attention and for contrast. Remember however that too many colors add confusion. Allow plenty of space. Do not crowd letters, words or illustrations.

Posters should supplement—not replace—other communication methods. They are often used to 'spearhead' or introduce a campaign. Or they may be used to reinforce an educational effort after it has been launched. In general, the greater the number of posters used in an area, the greater the impact—up to a certain point. Discretion and good taste will suggest the number to use. Most people find it annoying to be bombarded at every turn by the same poster message. Overuse of posters defeats their purpose and may actually turn people against the idea you want them to accept.

Posters may be produced in quantity by letterpress, by offset printing or by silk screen. Where only a small number are required, they may be produced by the individual himself, by an artist or by other persons such as school children.


Visite a su
AGENTE
AGRICOLA
Invitacion
DEPARTAMENTO DE EXTENSION

this silk screen poster gives the effect of four colors

Posters are put up on walls of buildings, fences, trees, poles, bulletin boards, store windows, trucks and automobiles and other places where they are likely to be seen by people passing by.

EXHIBITS AND DISPLAYS

Exhibits and displays have some of the same characteristics as posters, covered in the preceding section. The main differences are that exhibits and displays usually are larger and more detailed.

As with the poster, the job of the exhibit or display is to catch the attention of the passerby, impress on him a fact or an idea, stimulate his interest in the subject-matter presented and possibly urge him to take some sort of action. Differing from a poster however, the exhibit is larger, may have three dimensions and most important—imparts more detailed information than is possible with a poster.

NATURE'S CONCENTRATED FOOD PACKAGE
AIR CELL
WHITE
YOLK rich in fat protein & vitamins
COVERS
Outer membrane
Inner membrane

Because of their larger size and because they usually are placed in the market place or other areas where people move slowly, exhibits and displays attract and hold attention for longer periods than posters. Even so, the periods are not long. The viewing time will depend on whether the exhibit is in an open area or in a separate enclosed room.

Viewing time may be as short as one minute or as long as ten minutes. On the average, one should aim at telling the complete story in about three minutes. This means that whatever you can do to increase the attention-getting power of your exhibit, increase its attractiveness and personal appeal and keep its content simple and clear, the greater are the chances that the viewer will receive and understand your message.

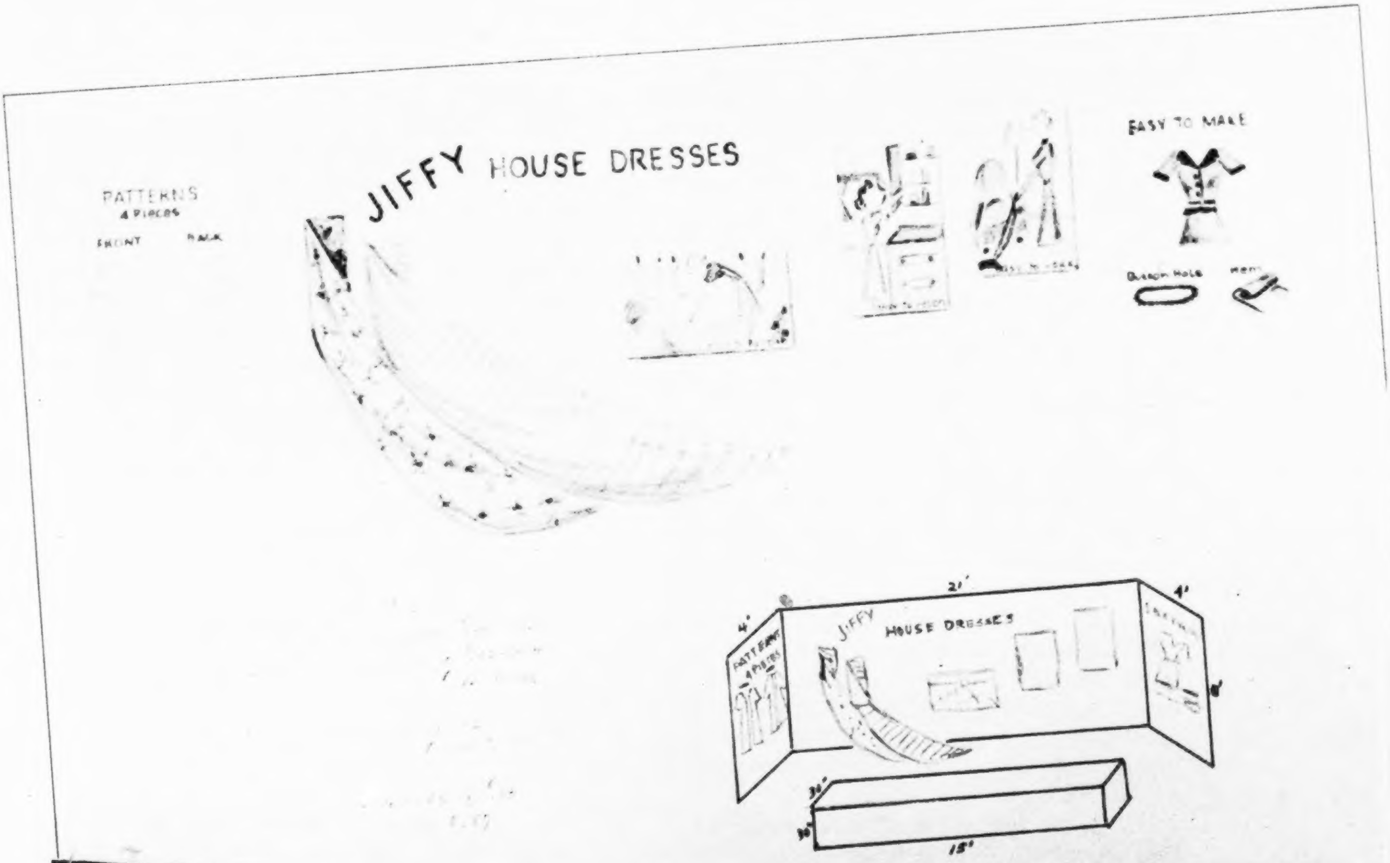
Planning

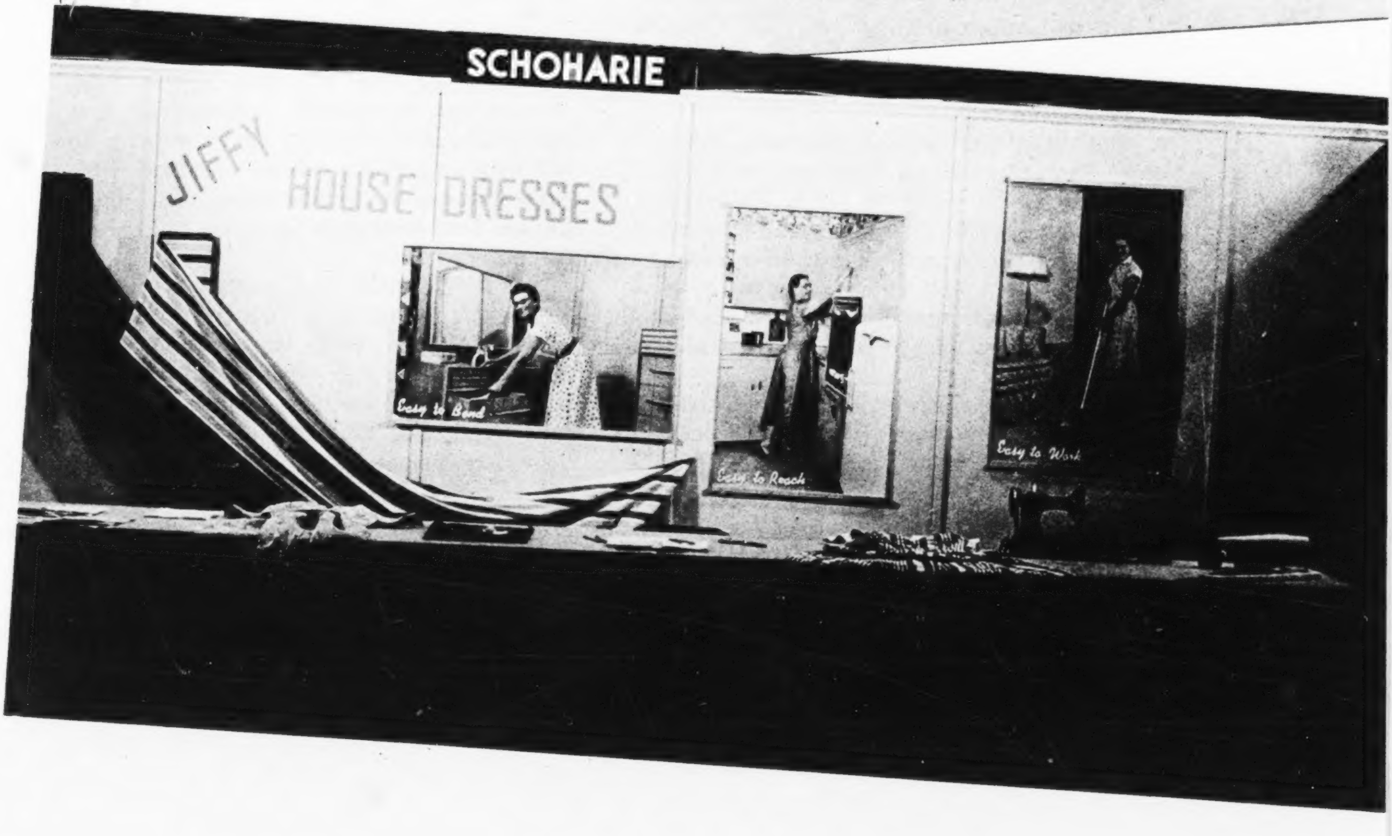
Again, as is true of all other visuals, *planning* is the first step in preparing exhibits and displays. Decide who the audience is, what the message is, what you want the audience to do. Answering these questions will help you plan the scope of the exhibit, the appeal to use and the content.

The most effective exhibits are built around a single idea with a minimum of supporting information. In a few simple words and pictures, tell farmers that a new seed variety is better and why—that's all. Make a miniature of your exhibit from paper or cardboard. This will help you see how it will look in full scale. Experiment with colors and design. Get an artist to help you plan the arrangement if one is available.

To attract attention and get people to stop and look at your exhibit, include something that will catch the eye. This might be a live object such as a sheep in an exhibit about sheep. Or it might be color, movement, light or any number of things you can think of by using your imagination.

One could try to define the 'something' that causes persons to stop and look for more detailed information. This 'something' must produce a 'mental shock'. Once the person stops moving in front of an exhibit he (or she) is susceptible to the rest of the message or messages in the exhibit. Incidentally a walking person passes by an exhibit in about the same number of seconds as there are lineal feet in front of the booth. In other words if the booth is ten feet wide in front, a person has about ten seconds to


PATTERNS
4 PIECES
FRONT
BACK
JIFFY HOUSE DRESSES
EASY TO MAKE
BUTTON HOLE
HEM
21'
4'
4'
8'
PATTERNS
4 PIECES
JIFFY
HOUSE DRESSES
30"
30"
15'


SCHOHARIE
JIFFY
HOUSE DRESSES
Easy to Bend
Easy to Reach
Easy to Work

comprehend the message intended. Thus it is obvious that one's attention must be attracted in a very short time.

In your exhibit, make the central idea stand out. The lesson taught must be clear at once. A combination of real objects, models or illustrative material plus a bold sign usually will get the point across.

Include appeal that will identify the subject matter with the viewer's own interests, experiences, needs. Make your exhibit say: "Here is something for *YOU;* here is an answer to *YOUR* problem; here is how *YOU* can make more money with *YOUR* dairy herd."

Once you have attracted the viewer's attention, interested him in the central idea and convinced him that the idea is important to him, you still have the job of presenting the supporting information — usually the 'why' or the 'how'.

Use 'before' and 'after' photographs with captions; use actual objects; contrasts —old vs. new, etc.—use models, drawings, actual demonstrations; use projected visuals, specimens. Use whatever you can find or devise to tell the story concisely, clearly and convincingly.

Here are some general suggestions that will help you prepare more effective exhibits and displays:

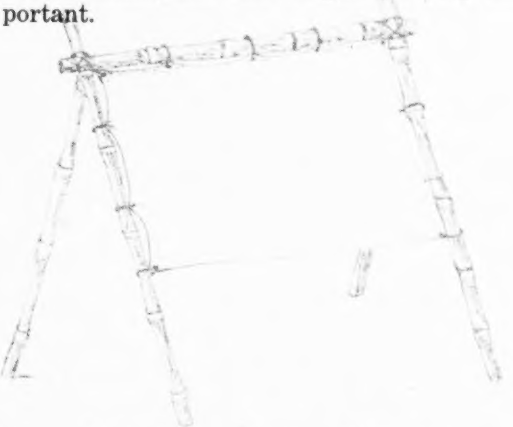
1. Clutter is the worst enemy of an exhibit. The fewer elements in your exhibit or display, the better.

2. Keep written material to a minimum. Use only enough captions and signs to tell the story. Vary the size, style and color of signs and lettering to create interest and direct attention to the center of interest.

3. Use a color scheme of not more than two or three colors with neutral shades for backgrounds and spots of intense color for emphasis.

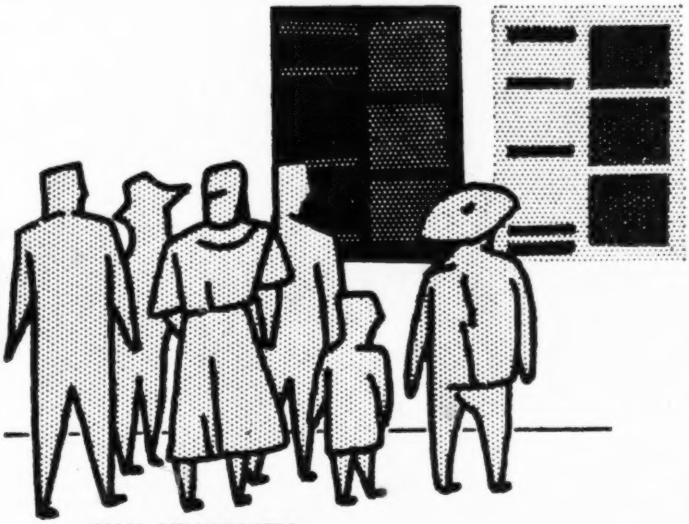
4. Place the center of interest near eye level. This is approximately five feet. Things above seven feet or below three feet won't be seen as well as they would be closer to eye level.

An exhibit requires some sort of vertical or horizontal surfaces or means of support. Various types of permanent exhibit units have been designed, some of which fold up for easy portability. Obviously, the larger and heavier an exhibit is, the more difficult it is to transport or store. Where trucks are available to move exhibits, size and weight are less important considerations. But where an exhibit must be carried on foot, bicycle or horseback, size and weight are very important.



Almost anywhere, satisfactory materials can be found from which the required vertical or horizontal supporting surfaces can easily be made. A simple frame of bamboo poles, filled in with a lattice of split bamboo, can be made in less than an hour. This surface will support heavy weights and will long outlast the exhibit material. Other surfaces may be made with palm thatch, banana leaf mats and many other local materials.

By securing the cooperation of villagers in producing a few basic items of visual equipment to be kept permanently in the village, extension workers can constantly use good visual teaching methods, yet save themselves the difficult work of carrying heavy equipment about.

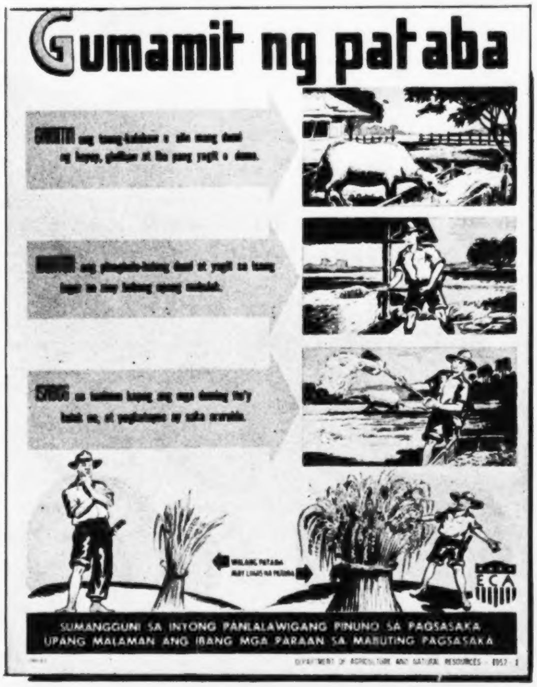


WALL NEWSPAPERS

Wall newspapers are similar in size and appearance to posters. They are different in that wall newspapers usually attempt to communicate more than one fact or idea. They also have more illustrations and written material.

Wall newspapers have been used for a considerable time in rural areas to communicate news of political and social interest. Because they are basically pictorial, drawings and/or photographs are their trademark. The text is as brief and vivid as possible.

Agricultural extension services in many countries have adapted the wall newspaper to educational programs and it has become one of the most effective extension teaching tools. It is used not only to communicate news of extension activities but also to report results of research and to recommend new practices.


Gumamit ng pataba
SUMANGGUNI SA INYONG PANLALAWIGANG PINUNO SA PAGSASAKA
UPANG MALAMAN ANG IBANG MGA PARAAN SA MABUTING PAGSASAKA
ECA
DEPARTMENT OF AGRICULTURE AND NATURAL RESOURCES · 1952

A typical extension wall newspaper might therefore contain pictures and text:

Announcing the appointment of a new livestock specialist.

Giving a progress report on a current fertilizer campaign.

Urging the use of vaccine to prevent fowl cholera in poultry flocks.

Reporting the results of experiments with new grain varieties.

In most countries where wall newspapers are used in extension programs, they are produced in quantity by a central office and distributed by mail or through the extension organization. Some wall newspapers are printed by letterpress. Offset duplicators offer greater flexibility in permitting the paper to be printed in local languages or dialects. Drawings and color are easily included with offset duplication.

Distribution varies according to the requirements of each country. Mailings may be made directly to village headmen, school teachers, mayors or other leaders. Local extension workers may deliver or even post papers in villages he visits.

Walls of buildings at busy intersections are excellent places to post the papers. They may also be posted on village bulletin boards, in reading centers, at schools, inside public buildings and many other places. When posting a wall newspaper out of doors, put it in a place out of the rain.

BULLETIN BOARDS

Many villages of the world have yet to be introduced to their first bulletin board. Yet this simple device can perform basic communication functions—attract attention, stimulate interest, deliver a message, produce action.

A well-located bulletin board can work for you almost constantly—announce your meetings and demonstrations, promote your programs and publications, teach new methods and practices.

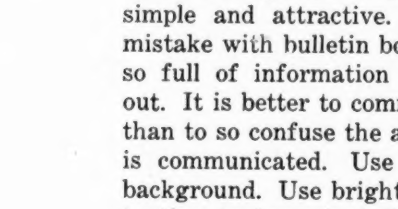
Items generally used on bulletin boards include photographs or drawings with captions, labeled specimens, publications, notices, posters and wall newspapers.

RECENT PUBLICATIONS
...of the College of Agriculture
Get your copies from
THE MAILING ROOM

Most of the principles of good exhibit design and preparation apply also to bulletin board arrangement. Make the arrangement simple and attractive. The most common mistake with bulletin boards is to pack them so full of information that nothing stands out. It is better to communicate fewer ideas than to so confuse the audience that nothing is communicated. Use a neutral color for background. Use bright colors to attract attention to important items or ideas. Make lettering simple and easy to read. Change the material frequently. Keep it up to date.

A bulletin board may be placed either out of doors or indoors. It may be supported by posts so both sides may be used. Or it may be fastened to a wall where only one side is used.

For the background, use a porous material that will hold thumb tacks or pins. A frame of wood or metal will improve its appearance. Some extension workers have added glass doors to protect items posted from rain and dust. Paint the board with waterproof paint. If it is to be placed out of doors, hang it in a protected place such as under an overhanging roof.



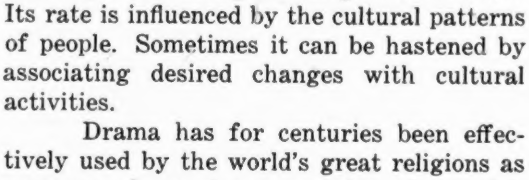
DRAMA AND MUSIC

In this booklet, we are studying ways in which communication methods can be used to bring about change. Change often is slow. Its rate is influenced by the cultural patterns of people. Sometimes it can be hastened by associating desired changes with cultural activities.

Drama has for centuries been effectively used by the world's great religions as a means of securing conversion of new followers and maintaining the faith of existing members. Because of the tremendous importance of drama and music in the lives of peoples throughout the world, these cultural activities cannot be ignored.

PLAYS

Organized drama groups, both professional and amateur, operate in virtually every country in the world, presenting plays to all who will come and watch. Many of the plays are epics and sagas, repeated year after year, with the plot known in detail even to the smallest child. Yet they are ever popular and attract huge crowds.

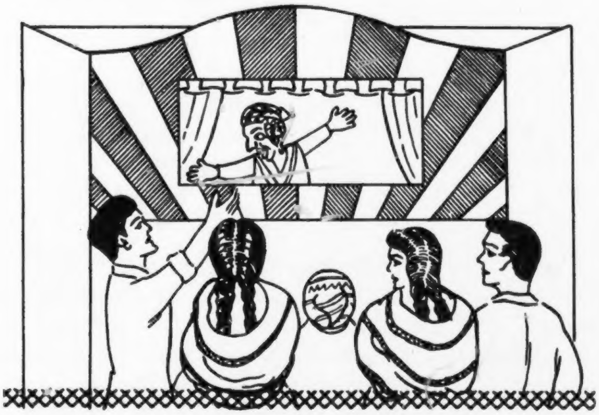


Occasionally these groups can be interested in worthwhile educational efforts to the extent that they will agree to adapt a problem to the medium of drama and present plays to interest people in the problem. The extension worker who is able to persuade a group to present such plays is fortunate. With its conflict between good and evil, the emotional involvement of the audience and the usual triumph of good over evil, drama represents one of the most powerful means of human communication. Many vital changes and improvements in agricultural production and rural living have been brought about in this manner.

It may be necessary for the extension worker to completely work out the details of the plot and the dialogue. It may even be necessary for him to recruit actors and rehearse them. But because of the tremendous appeal of drama to people everywhere and its ability to involve people emotionally in a given problem, it represents an important channel of communication which should not be overlooked as a means of bringing about change and improvements.

PUPPETS

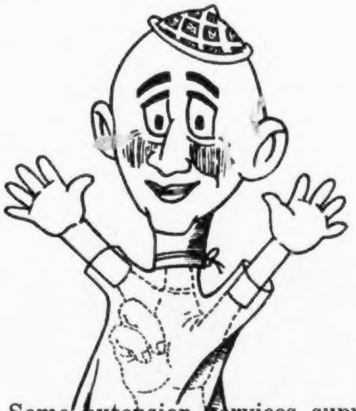
Almost all of the advantages of plays apply also to puppetry, another form of drama. In this ancient art, small figures, representing humans and manipulated by unseen humans, act out their surprisingly lifelike dramas on a small portable stage.



Extension workers in Bolivia found it effective during a show to have a puppet strike up a conversation with a leading farmer and ask him about his practices. Other farmers learned by listening to the conversation. A variation of this technique is to have the extension worker sit in the audience and carry on a conversation with the leading puppet about local farming problems and recommendations.

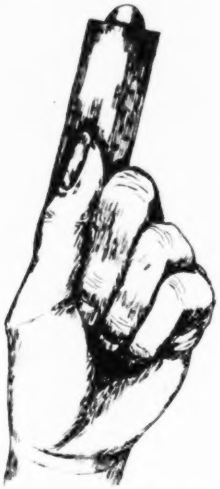
Many who have used them say that puppets offer advantages over real live actors. Fewer people are involved in the production. Parts need not be memorized but may be read. The play may thus be presented with a minimum of rehearsal. Unusual characters such as animals, vegetables and demons can be represented more easily through puppets than by live actors. A puppet play can be given quickly and almost anywhere. The stage takes little space and even this may be prepared in a few minutes from a few locally available materials.

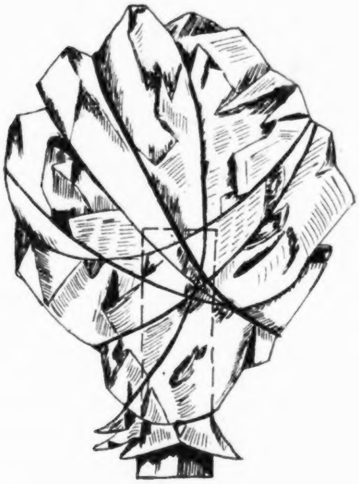
Two kinds of puppets are used—the string type and the hand type. Since the string type is more difficult to make and requires greater training and skill to use, only the hand type will be covered here.



Some extension services supply puppets to local workers along with suggested scripts and directions for making the presentation. But puppets are not difficult to make and the worker who wishes to try this novel and effective method need not wait for someone to supply his equipment. Here are some suggestions for making puppets:

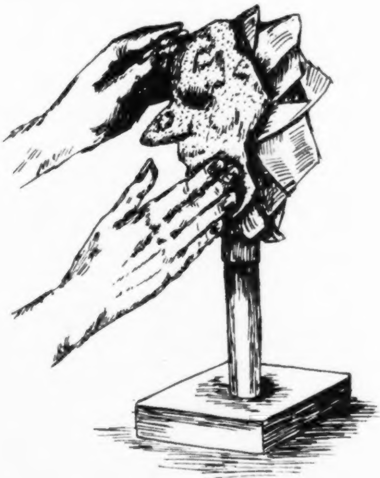
Start by finding or making a fairly stiff tube that fits firmly over the index finger. Cardboard, bamboo and certain kinds of reeds and bark can be used to make a satisfactory tube. ⇨

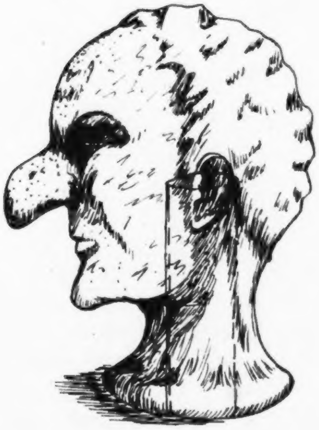




⇦ *Wrap crumpled newspaper around the tube approximately to the size of head you wish your puppet to have. Wrap with string to hold firm. Brushing lightly with glue will reinforce string and help hold shape of head. You will find it easier to shape the head if you put the tube down over a stick that is firmly held by a vise or firmly attached to a board or other solid object.*

Make the papier-maché. Soak 1" strips of newspaper in water to which has been added a little alum. Soak 24 hours. Add a handful of flour the next day. When the mixture is like bread dough, model the face over the paper form. ⇨





⇦ *Finish the papier-maché head, leaving a shoulder at the bottom of the tube. The shoulder is necessary to hold the costume on. It permits quick changing of costume if this should be necessary, as in a lesson on clothing and textiles.*

Paint the head in life-like colors. Make costumes. Dress the puppet.

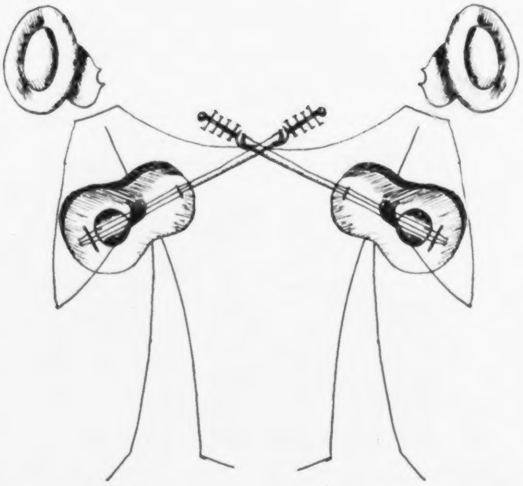
In operating the puppet, the head fits on the index finger. The thumb and middle finger are the arms. The fist, hidden inside the costume, is the body. You can quickly learn how to nod the head, wave the arms, pick up objects and simulate walking and even dancing.

A table top will serve as the simplest kind of stage for the puppets with the operators hidden behind a cloth curtain. More elaborate portable stages can be made from bamboo or other light wood and can be equipped with colorful cloth backdrops and even drawstring curtains.

In Mexico, puppets proved to be such effective 'teachers' that special vans were built to take health education shows into the rural areas.

"ESCULAPIO"
TEATRO DE MUÑECOS ANIMADOS
DIRECCION DE EDUCACION HIGIENICA

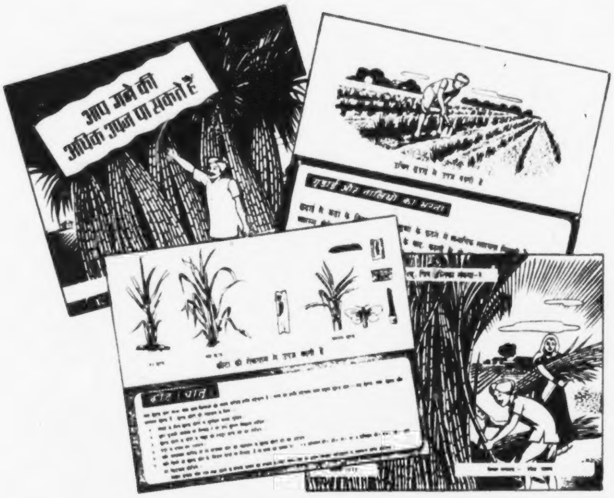
Teachers with the Ministry of Health found that village people respond more to puppets than films because characters answer questions and seem genuinely concerned with the problems of individuals.



SONGS AND BALLADS

Music is another art form that has been successfully adapted to the vital job of extension teaching. In many countries, groups move about through the rural areas playing musical instruments, singing songs and ballads, presenting musical drama and doing acts of magic and acrobatics. At the same time almost every village has talented individuals—men, women and children—who sing popular and traditional songs and ballads and thereby satisfy some of the cultural needs of the people.

Extension workers have found these entertainers to be interested in the problems of the local people and cooperative in helping to communicate ideas about improved practices. In some cases, entertainers have developed songs about improved methods. In other cases, extension workers have written songs and ballads and these have been sung before large groups both by professional groups and by local village singers. Simple, catchy, melodious tunes and words often will be sung by children at play and the message 'rubs off' on the adults. In areas where literacy is almost non-existant and oral communication is the only means of reaching people with new ideas, these methods represent a very real and a very effective opportunity to communicate information.



आप गन्ने की
अधिक उपज पा सकते हैं

ILLUSTRATED LITERATURE

Literature plays a vital part in agricultural extension programs. It is true that many highly successful educational efforts have been carried out in non-literate areas without using a single leaflet. But these programs usually have been of limited scope and of relatively short duration. They also have involved generous use of demonstrations, tours and other visual teaching. Any long-range plan for broad agricultural development must include the production and use of literature at many different levels.

There is a tendency to believe that if a man can read, he will understand. This is not a valid assumption. It is not valid because of the great differences in people caused by their differences in past experience. Frequently, the result of written communication is misunderstanding, misinterpretation or even total lack of understanding of the message on the part of the reader.

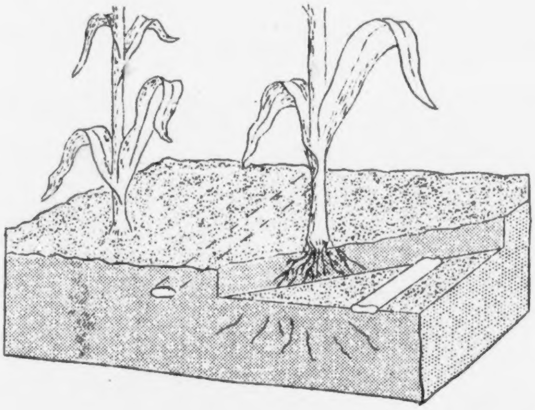
This problem is with us everywhere—even in extension services in countries of high literacy. It is simply a problem associated with being a human being. We gradually learn more about these and other problems of communication. And then we do the best job we can of solving them. That is what this booklet is about. And at this point we can say that illustrations offer you a means of increasing the accuracy of your message when you communicate through the channel of literature.

ILLUSTRATED CIRCULAR LETTERS

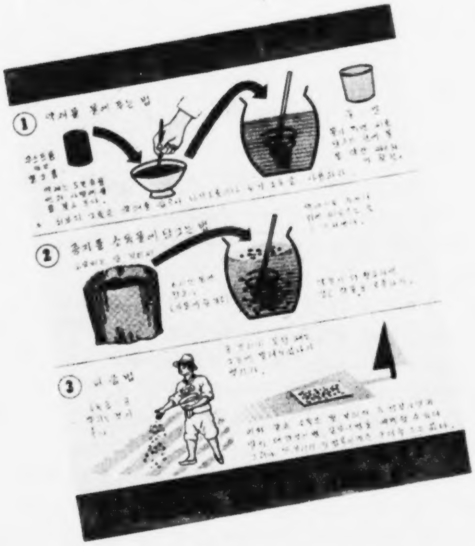
A circular letter is a letter of the same content sent to a large number of persons. It may be reproduced in quantity by one of several duplicating processes—mimeographing or cyclostyling, spirit duplicating or offset reproduction.

Suppose the state extension administrator wishes to call all of his staff members to a conference. His staff may number in the hundreds. A circular letter is perhaps the most efficient method of calling the group together. A brief statement giving the time, place and purpose of the meeting probably is all that is required.

But suppose the crops specialist believes band placement of fertilizer will increase corn production and he wants local extension workers to recommend the practice to farmers. Here again, a circular letter is an efficient method of reaching the workers. But describing the recommended practice in words alone may be inviting trouble. In this case, a simple diagram showing the relationship between the plant and the bands of fertilizer would eliminate much of the chance for misunderstanding.



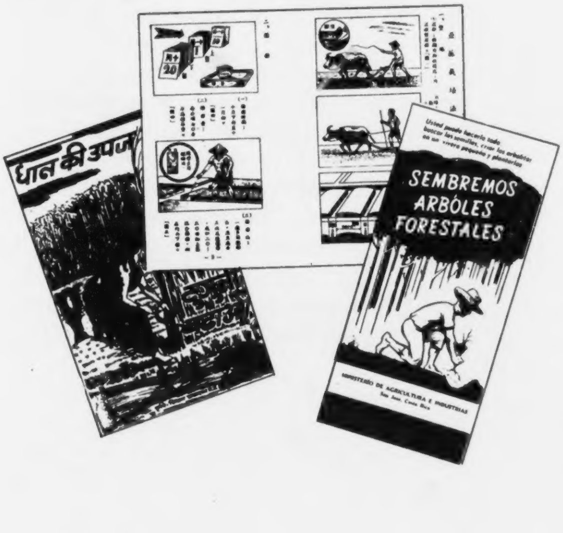
Local extension workers also may find it convenient to be able to reproduce circular letters to send to farm leaders and even to farmers where the literacy rate is high enough, or where the farmers have been given special training in interpreting illustrations in the letters.



In some areas of low literacy, it would be possible to prepare circular letters consisting almost entirely of drawings that would stimulate, interest, teach or otherwise bring about progress. The extension worker who is able to adapt this useful medium to his situation and train his people to read and interpret it, can experience tremendous satisfaction in seeing people make progress through the adoption of improved methods.

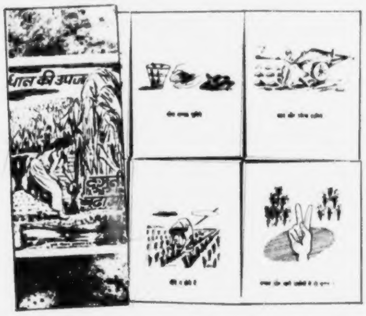
FOLDERS, LEAFLETS AND PAMPHLETS

Simple folders, leaflets and pamphlets can be used in many ways in extension programs. They may be used singly for example, to explain the advantages of testing soil. They may be used in series on broader subjects like swine raising, with separate leaflets on feeding, housing and breeding. They may be used as reminders of when to plant crops or what chemicals to use to control different insects.



Folders, leaflets and pamphlets may be used in coordination with other visuals in long-range campaigns. Because of their low cost, they can be given away at meetings and fairs and offered on radio programs. They are useful to supplement larger publications when new information is available and when reprinting the whole publication is not practical.

Besides the advantages of low cost and short preparation time, folders, leaflets and pamphlets take less time to get their message across. Their smaller size makes it necessary for the author to eliminate nonessentials from his message.



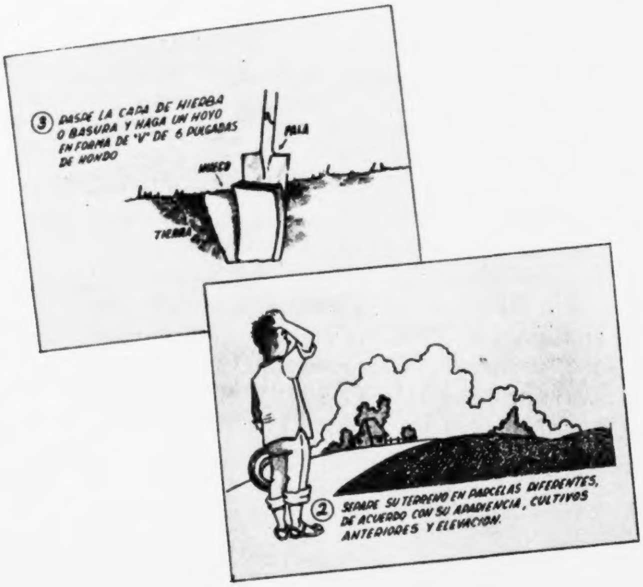
When preparing these materials, keep your audience constantly in mind. Write with words people understand. Write about things that interest people. Change your method of presentation as you write to young people, farmers, women. Eliminate difficult scientific and technical terms.

The importance of illustrations can not be over-emphasized. Even where literacy is not a problem, people interpret *words* differently because of differences in past experience.

Almost every extension service overestimates the ability of its audience to read a printed message and understand it clearly. Almost every extension service over-estimates the extent to which people will be attracted to and read a printed message.

Illustrations reduce the risk of misunderstanding; help make your message clear and more attractive; increase learning.

Good layout arranges material in a logical, easy-to-follow manner and makes it attractive to the reader.


③ PASPE LA CAPA DE HIERBA O BASURA Y HAGA UN HOYO EN FORMA DE "V" DE 6 PULGADAS DE HONDO
PALA
HUECO
TIERRA
② SEPARE SU TERRENO EN PARCELAS DIFERENTES, DE ACUERDO CON SU APARIENCIA, CULTIVOS ANTERIORES Y ELEVACION.

Realistic illustrations usually are the most effective in extension work, although humorous drawings have a definite place. Use humor carefully so as not to offend anyone. Good pictures make any publication easier to understand and more interesting to read. Crop unnecessary details out of photos. Keep drawing simple.

Folders generally have more appeal when a color of ink is used other than black. Choose colors that are legible as well as appropriate—dark green ink for pastures, dark brown for soils. Two or more colors can be used if the extra cost is justified. Colored papers can also be used for interesting effects and are available at small extra cost.

Attractive, effective publications can be prepared on spirit duplicators, mimeograph machines, offset duplicators or letterpress. It is not difficult to train an artist to produce illustrations, headings or even copy in local dialect for each of these methods of printing.

Recognize that the cover of illustrated literature has a function differing from the pages within. The cover should be attractive, colorful and impelling. The audience should feel an urgency to look inside. A bulletin that never reaches the hands can't possibly reach the brain where judgments and decisions are made.

FACT SHEETS

Fact sheets are 'boiled down' treatments of subject matter. They usually cover a single topic and often they are limited to a single page.

Most fact sheets are illustrated with drawings or photographs or both. The illustrations are used to show details, steps in a process or to otherwise make the information clearer and more understandable. One of the important uses for fact sheets is to provide current subject matter to field workers. Field workers frequently complain that needed technical information is slow in reaching them. Much agricultural information is put up in technical bulletins and other lengthy publications. These take considerable time to process and distribute.

RECIPE

FOR BETTER FARMING ··· BETTER LIVING

Vaccination for Disease Control

On the other hand, the essential facts can be put down and combined with drawings and/or photographs to make an effective capsule summary which can be reproduced quickly and inexpensively in fact sheet form. This puts current information into the hands of local extension workers enabling them to give better service to farm families.

Extension administrators who are concerned with the problem of speeding up intra-staff communication of subject matter should study the advantages offered by fact sheets.

DUPLICATION TECHNIQUES

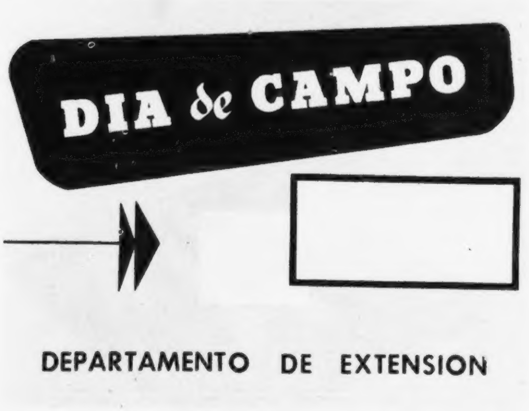
To produce significant change, an agricultural extension program must reach large numbers of people. It is known that the personal approach is the most effective teaching method. Yet no extension service could afford to employ the number of field workers that would be required to reach every farm family through personal teaching.

Duplication techniques offer a practical and efficient means of multiplying individual effort—of increasing the total impact of an extension program on people.

SILK SCREEN PRINTING

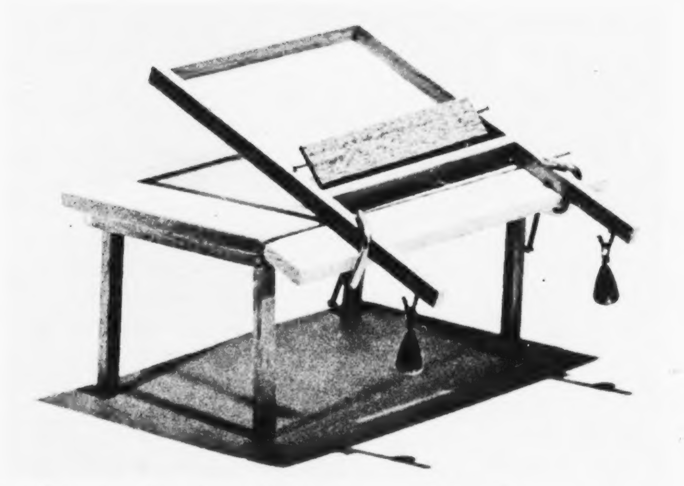
Silk screen printing permits low cost reproduction of posters, charts and exhibit components, with simple inexpensive equipment.

The printing is done by forcing ink or paint through an 'open weave' silk by a rubber-tipped tool called a squeegee. The printing may be done on paper, cardboard, plastic, metal or fabric.



In use, the silk has attached to it on the underside a stencil that may be made of various materials. The stencil is open where ink or paint is to print on the final copy.

The ink is stored inside the frame on the silk and closed stencil portion. With the frame in contact with the paper or card to be printed, the ink is pushed through both the open-weave silk and stencil to form a thin layer of ink on the card. The paint passes through the open areas. It does not penetrate the closed areas. The desired design is thus printed.



model of table-size silk screen - note board hinged to table with frame clamped and counterbalanced for easy work

Many techniques are used in silk screen printing. Selection of method depends on desired artistic effect and on availability of required materials.

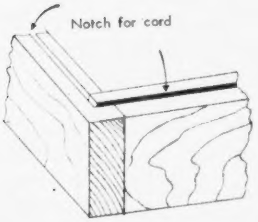
Preparing the Screen

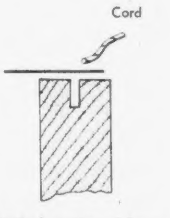
Materials:

- 2″ x 2″ soft wood strips or 1″ x 2″ hardwood
- silk bolting cloth, density about #12 or #15
- tacks or staples
- gummed tape
- shellac

Construct printing frame of 2″ x 2″ seasoned soft wood or slightly smaller hardwood. Allow ample size to include size of desired poster *plus* 3″ border all around inside of frame. Carefully stretch and tack silk over frame.

Because the silk eventually wears out or stretches, it must be replaced from time to time. Replacing silk that has been tacked to the frame is difficult and takes time. Some people prefer to use a frame in which a groove has been cut. The silk is stretched over the frame and is held in place by forcing it down into the groove with a heavy cord. The cord, which is wedged into the groove, holds the silk in place. It is easily removed when necessary to replace the silk.





Vertical section of frame showing notch for cord

The silk must be absolutely taut in order to print properly. Stretch the silk smooth and taut while tacking or applying the cord. Seal the inside edges of cloth against frame with gummed tape. Apply tape also to outside edges of frame over tack heads. Shellac tape. Screen is now completed.

Construct baseboard several inches larger than outside screen size. Plywood, ¾" thick, is good. Other materials may be used if surfaces are warp-free and smooth.

Attach one of the sides of the screen to baseboard with loose pin hinges. The frame thus may be raised and lowered at will for placement and removal of cards during printing. Pins may be pulled from hinges to remove frame from base at completion of print job.

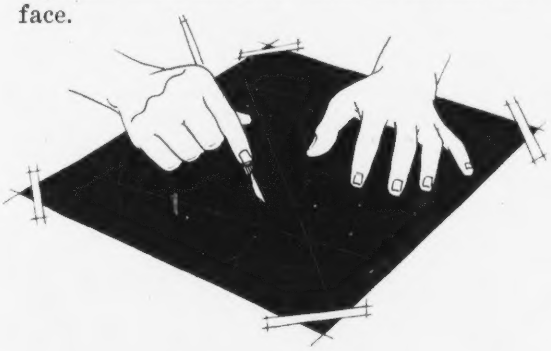
Preparing the Stencil

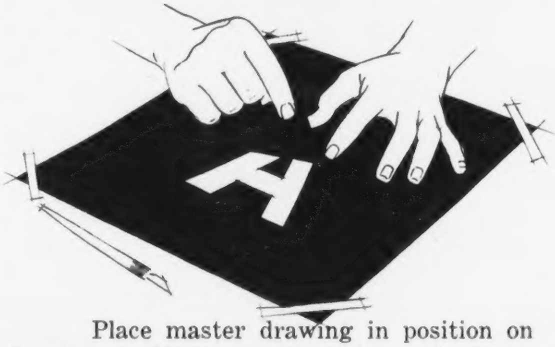
Materials:

- Lacquer film (manufactured under various trade names for silk screen reproduction)
- Stencil cutting knives
- Acetone or lacquer film adhesive
- Lacquer

This is the most important phase of the silk screen process. It involves blocking out certain areas of the screen and leaving open those which appear as the design. This lacquer film method is widely used commercially. It gives clear sharp impressions and withstands rugged use.

Lacquer film is composed of two layers—the film itself and a glassine backing. The two are cemented together. It is translucent. It is placed over original art work for stencil cutting. One color of the art work is selected for each screen printing. Areas to be open for printing are cut and lifted out of the film layer, care being taken not to disturb glassine layer which holds design together until attached later to screen surface.





Place master drawing in position on baseboard. Mark corners with pencil. Place lacquer film in correct position over drawing with shiny side up. Attach several small pieces of masking tape, face up, to edges of film. Lower screen over film and press where tape is located. Lift screen and remove master drawing. Tape will hold film to screen. Insert cardboard under screen temporarily for better contact. Lower screen.

Film is adhered to screen by application of adhering liquid. Saturate cloth pad with it and apply to the screen sparingly in small areas. As each area is wetted, rub it quickly with a dry cloth pad. This seals film to silk. Continue procedure until entire film is firmly adhered to silk screen. After the film is thoroughly dry, remove the paper backing by pulling from one corner to the opposite corner. Block in open areas between edges of lacquer film and edges of screen with lacquer or liquid glue. The screen is now ready for printing.

After printing, remove film from screen with film remover or acetone. A pad of newspapers can be used under the screen to absorb the film. After thorough cleaning, the screen is ready for another film.

For bold work, paper can be used in place of film. Where letters or drawings have parts that will drop out such as the letter "O", little bridges of paper may be left to hold the part in place. Almost any nonporous paper may be used including bond and brown wrapping paper.

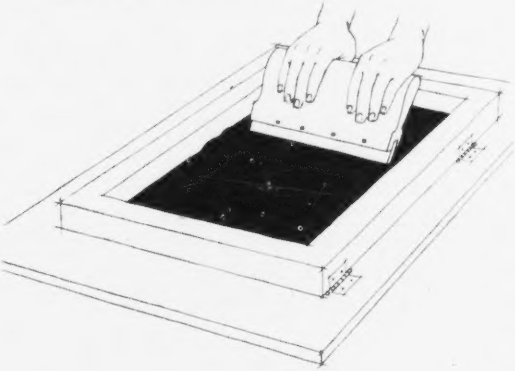
Printing

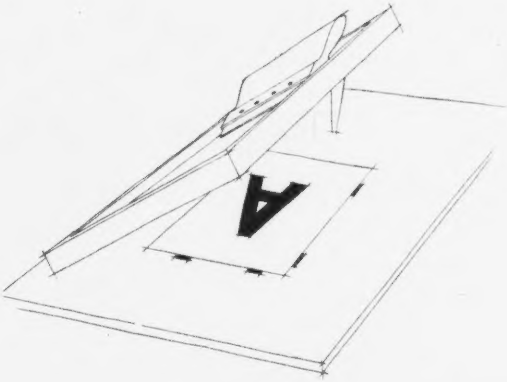
Materials:

- Printing squeegee (rubber tipped)
- Silk screen process colors
- Mineral spirits or kerosene
- Silk screen extender
- Silk screen mixing varnish

Before starting to print, center a blank cardboard or paper under the frame. When properly aligned, carefully lift the frame leaving the card undisturbed on the base. Along two sides attach register tabs. These may be small pieces of light cardboard held in place with rubber cement or some similar substance. Thus each card will be held in exactly the same place on the baseboard while printing.

Mix ample supply of desired color which should be the consistency of heavy cream. Pour color on margin on screen. Try several printings on newspaper before starting on actual cards. Hold squeegee at 45° angle as you pull color across screen for each printing. If color on screen becomes too thick, thin with extender or mixing varnish. Drying racks are convenient to hold cards while drying. When printing is completed, clean screen and squeegee thoroughly with mineral spirits or kerosene. Use newspapers to soak up paint and solvent.





Block-out Method

This is a very simple technique. Screen areas to be closed are hand painted with lacquer, glue or shellac. Open areas are untouched.

Lacks sharp clean cut edges but is interesting for rugged appearance.

Tusche Method

Design is painted on screen with tusche—a heavy greasy paint. Screen is then covered with liquid glue. Tusche is removed from screen with kerosene, leaving spaces open for printing. Glue prevents color penetration in closed areas.

Lacks sharp detail. Fine for casual effect. Liked by artists for direct approach—similar to painting picture on screen.

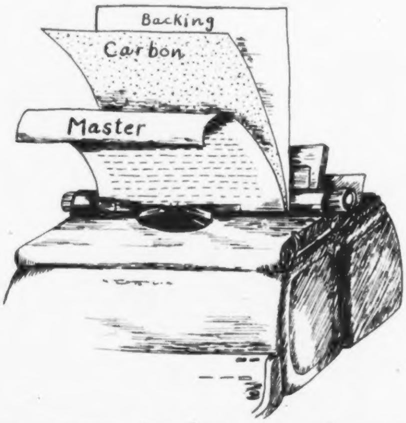
Photo Stencil Method

Screen is sensitized. Design is transferred to surface. Various processing steps open up areas on screen.

Fine detail is reproduced. Procedure in making stencil is exacting.

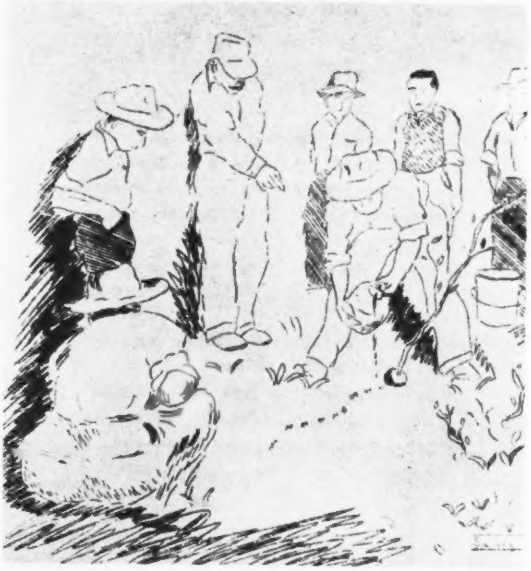
SPIRIT DUPLICATION

Spirit duplication is a low-cost process involving the use of a simple hand-operated or electric machine. Up to 400 copies of typed, hand-written or drawn material in one to five colors may be quickly prepared.



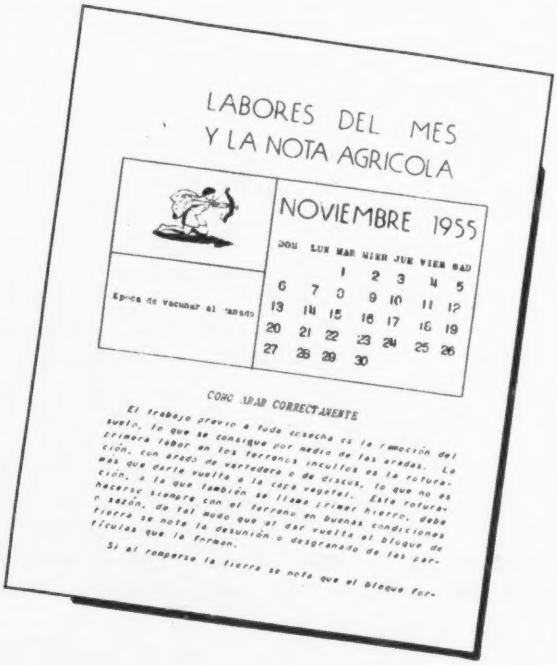
The process involves use of paper masters consisting of a first sheet of coated paper and a second sheet of special aniline-dye paper placed face up under the first. As impressions are made on the first sheet, dye from the second sheet is transferred to the back of the first sheet which becomes the printing surface.

The master is placed on the duplicator. The paper being printed picks up a small amount of dye as it comes in contact with the master. This transfer takes place because the paper being printed is moistened slightly with an alcohol-base solvent—hence the name 'spirit' duplication. Spirit duplication is extremely fast and lends itself readily to the use of several colors. The method gives fair sharpness of detail.



MIMEOGRAPH

Mimeograph is the name of a widely used and relatively inexpensive stencil duplicating process. It reproduces up to several thousand copies of typewritten or handwritten copy, line drawings or combinations. Color work is possible and the stencils may be saved for re-runs.



LABORES DEL MES
Y LA NOTA AGRICOLA

NOVIEMBRE 1955

DOM	LUN	MAR	MIER	JUE	VIER	SAD
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

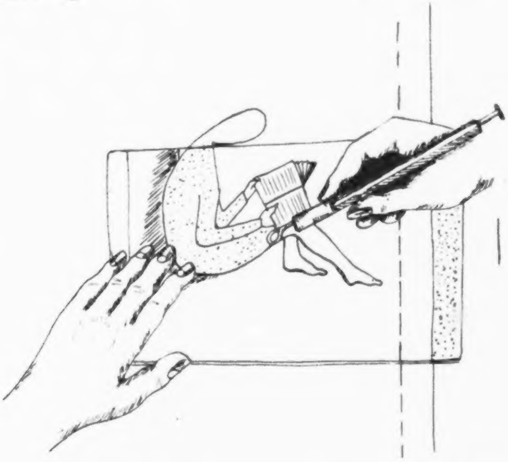
Epoca de vacunar al ganado

COMO ARAR CORRECTAMENTE

El trabajo previo a toda cosecha es la remoción del suelo, lo que se consigue por medio de las aradas. La primera labor en los terrenos incultos es la roturación, con arado de vertedera o de discos, lo que no es más que darle vuelta a la capa vegetal. Esta roturación, a la que también se llama primer hierro, debe hacerse siempre con el terreno en buenas condiciones o sazón, de tal modo que al dar vuelta al bloque de tierra se note la desunión o desgranado de las partículas que la forman.

Si al romperse la tierra se nota que el bloque for-

The stencil consists of a sheet of porous tissue with an ink-impervious coating. This is usually attached to a protective paper backing.



As impressions are made on the stencil by the typewriter or by a drawing instrument, the coating is pushed aside, exposing the porous tissue. The stencil is then placed on the ink cylinder of the machine. As the cylinder rolls across the paper being printed, ink is squeezed through the porous tissue and the written or drawn material is reproduced on the paper.

Illuminated drawing tables and other equipment and supplies are available that can add to the ease and attractiveness of stencil preparation.

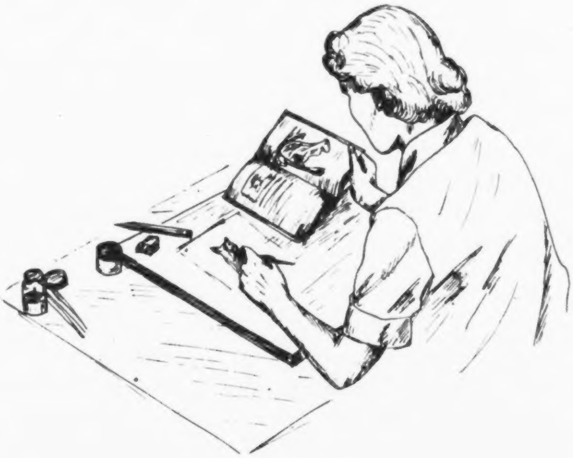
OFFSET

The offset process takes its name from the unique printing principle involved. Instead of printing directly from a mat or plate to paper, the image is 'offset' from the mat or plate to a rubber blanket which in turn, makes the impression on paper.

Offset mats or plates are prepared for the printing machine either by *direct* or *indirect* methods.

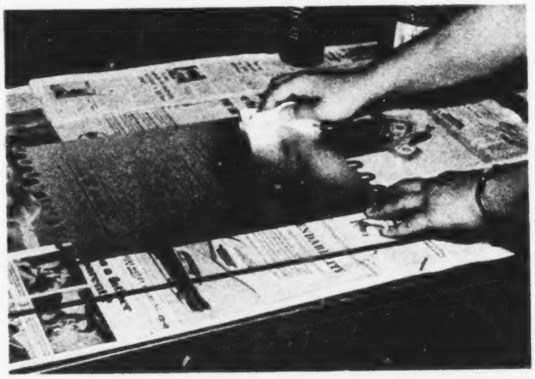
Direct Method

By using special typewriter ribbons, pencils, crayons and inks it is possible to type or draw directly on paper mats. Careful work by an artist or typist greatly increases the effectiveness and attractiveness of the final product. All material drawn or typed with these special reproducing materials will be printed on the final paper. Special non-reproducing pencils are available that can be used to draw guide lines for layout.



Indirect Method

The indirect method employes photography to prepare metal plates for longer runs. In addition to typed or printed copy, line drawings, pencil sketches and photographs may be reproduced. A darkroom is required. Photographic methods are so varied that it is beyond the scope of this booklet to cover all the possibilities. For detailed instruction consult a good book on offset duplication.



preparing metal plate for offset reproduction

It would be well to point out however that standardized layout sheets for page copy of leaflets can be printed on the offset machine in what is called a drop-out blue or non reproducing blue ink. If these sheets contain all the guide lines for margins and other pertinent data the copy can be typed, drawn or pasted within these limits and the blue lines do not reproduce.

Many types of materials useful in extension programs can be made with an offset duplicator. These include colorful posters, fact sheets with photographs, illustrated wall newspapers with copy in dialect, circular letters with cartoons and with copy prepared on a local language typewriter, two or three color folders, pamphlets and a host of other materials.

It would be possible for example, to design a complete teaching kit to be used in an educational campaign, including flash cards, flannelgraph, folders, circulars, posters, flipbooks and other items. Each of these items could be produced in quantity, the kits assembled, and each field worker supplied with a set of the teaching aids, along with instructions on how to use them.

It is possible to get by in a minimum operation with a machine, an operator, paper mats and inks.

Offset duplication is economical and efficient, with speeds possible up to 6000 copies per hour. Paper mats can be used for runs as few as 50 or as many as several thousand copies. Metal plates are used for very large runs. Both types can be saved for limited later re-runs.

Duplicators come in several models and sizes. They are compact and occupy only a few square feet of floor space. It is desirable to have running water available at or near the installation.

PROJECTED VISUALS

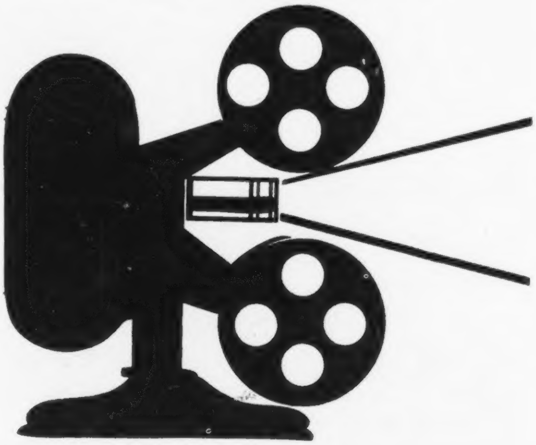
Projected visuals — motion pictures, slides, film strips and other forms — have much appeal and are among the most effective of the visual teaching aids. It is well to remember that they have important limitations as well as advantages.

The main advantages of each type of projected visual are discussed in the sections that follow. In general, the disadvantages or limitations are similar — special equipment is required both to produce and show the visuals. This equipment tends to be relatively expensive. Some sort of power is required to operate the projectors. Transportation, maintenance and storage of equipment and materials require special consideration.

If these limitations do not present a problem in your situation, you will do well to make as much use as possible of projected visuals in your extension program.

MOTION PICTURES

Motion pictures really are not 'motion' pictures at all. They are a series of still pictures on a long strip of film. Each picture is flashed momentarily on the screen and the rapid succession of still pictures — each of which shows the subject in a slightly different position — gives an illusion of movement. The main thing to realize is that motion pictures can be tremendously effective in helping you do a job of teaching.

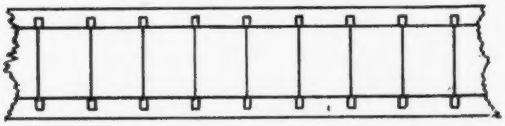


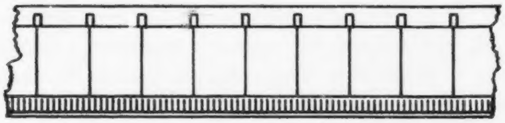
Films have the potential to create powerful emotions and urges. This means that selected and used properly, they can *intensify the interest* of your audience in the subject you are teaching. Films are excellent also for *showing the steps* necessary in doing a task or for showing a continuous action.

They can reproduce events long since past. They can *record* a demonstration today that can be given over and over again tomorrow to many different people in many different places. They can slow or accelerate motion for better analysis of action and growth. They can magnify action on a screen that normally would be too small to be seen easily or clearly by an individual or group. They can condense or stretch time.

Many other strong points for using motion pictures could be mentioned but the reasons already given are among the most important and help explain why films are a potent teaching tool. For motivating an audience, for appealing to the emotions, for a clear concise portrayal of action, few media approach the motion picture. It portrays reality.

The size of film most commonly used for educational motion pictures is 16 mm. All 16 mm films are not alike however. Those made for viewing silently or with comments by a leader are made with sprocket holes on *both* sides of the film.





Films made by professional laboratories to which sound is added have sprocket holes only on *one* side of the film. You should not attempt to project sound film on a silent projector therefore because the teeth of the drive mechanism will punch holes in the sound track.

Another difference is that silent films are made to operate at 16 frames per second or somewhat slower than sound film which runs at 24 frames per second. If a silent film is run at the speed for sound, a decided increase in the speed of action will take place.

These points are mentioned briefly to emphasize that the person who plans to use motion pictures should study a manual or other reference materials on projection equipment and its use. This will help you avoid costly mistakes.

Using Motion Pictures

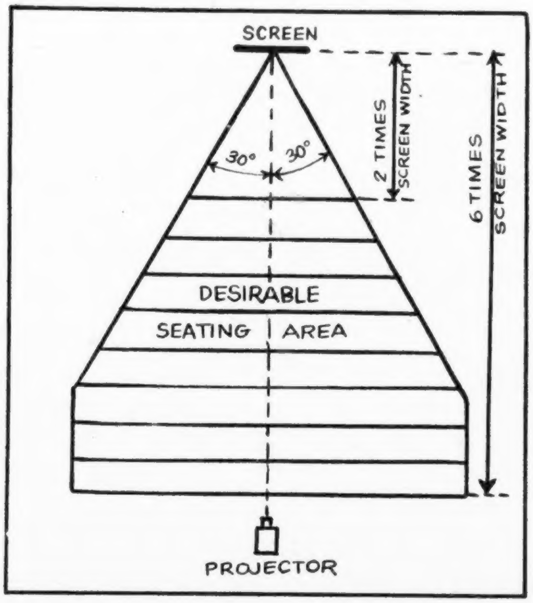
In selecting a film to use in a given teaching situation, you must exercise the same judgment you would in selecting other teaching aids and materials. In addition to your objective, you must consider the previous experience of the audience along with such considerations as age, education, interests and customs.

A film should be used only as a teaching *aid*. Leaders frequently make the mistake of showing a film without preparing the audience or following up. Because movies sometimes cover too much ground or include too much detail, considering the experience of the audience, viewers often fail to understand ideas presented.

To do the best kind of a job, the leader first must be thoroughly familiar with the subject he plans to teach. He must know exactly how the film supports the ideas he wants to get across. Before he shows the film, he should explain the lesson, tell why it is important and stimulate viewers to look for certain things in the film. When this procedure is followed, the end of the film is the signal for the beginning of a lively discussion and question period.

A successful film showing depends on looking after a number of details. You will need an adequate power supply that matches the requirements of the projector. This means checking on details such as extension cords and electrical connections. Some means should be available to darken the room without cutting off ventilation. Spare projection lamps should be on hand.

Before the audience arrives, the machine should be set up, threaded with film, focused on the screen and tested. A suggested seating arrangement is shown in the accompanying diagram.



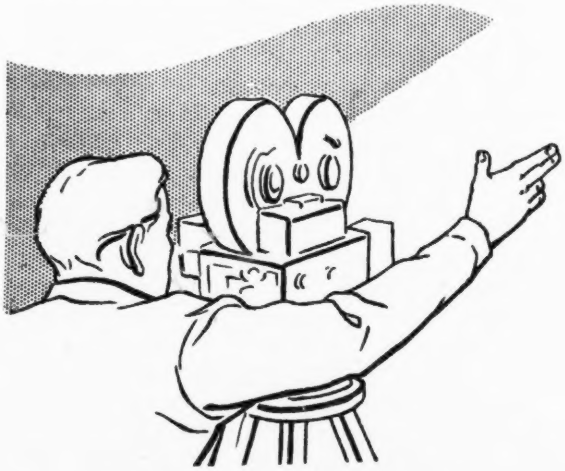
The projector should be high enough to project *over* the heads in the audience and the screen high enough from the floor for all to easily see the bottom of the picture. A good rule is 4 feet from the floor to the bottom of the screen.

Producing Motion Pictures

With the availability of moderately-priced movie cameras, wider-latitude films, relatively inexpensive color film and improved processing facilities, motion picture production is being undertaken by more and more agricultural extension services throughout the world. Even some field workers are producing effective and economical short length teaching films.

Film production nevertheless is something not to be rushed into without careful consideration of the many different problems involved. These problems include among other things, the need for persons with a reasonable amount of training and experience to operate cameras and other equipment; to plan shooting scripts; to write effective narration. Availability of these special human resources and talents is even more important than funds to pay for labor, supplies and equipment. Frequently these talents can be located in persons already employed within the extension organization.

Most national extension services either have established film production units or have contractual arrangements with commercial producers to obtain instructional films. Many state extension services also are producing films as are a few field workers, as mentioned above.

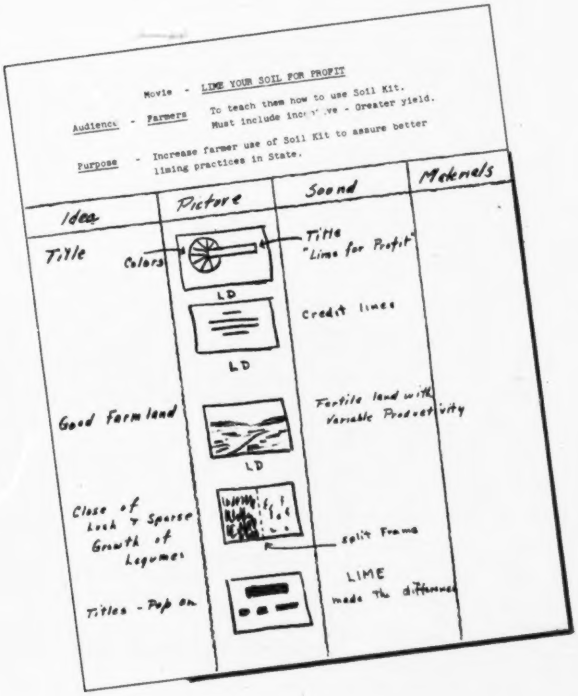


How far this effort can go in the direction of localized film production depends not only on the points discussed above but also on extension service policy. In the United States, where production of educational films on agricultural, homemaking and rural youth subjects has a long history, an increasing number of films are being prepared by state extension specialists and to a lesser degree by county extension agents.

This has come about partly by the rapid expansion of television which demands considerable local program material; the increasing specialization of agriculture and the resulting need for detailed film treatments; and the natural interest of people in seeing themselves, their friends and their local farming and homemaking problems treated in film.

Among the new developments that facilitate adaptation of film to local situations is the magnetic sound stripe on 16 mm film. This is an iron oxide compound inbedded in lacquer and applied to the film in a narrow band. A local language narration or interpretation of action in the film may be added with a microphone in much the same way as in making a tape recording. As the film is shown, the recorded narration is heard. The track may be erased and rerecorded as often as you wish.

Remember that a movie with a good idea but which lacks professional polish will be better received than one with a great deal of polish but which fails to have a clear cut idea. To help crystalize your thinking make an outline or a story board on cards as illustrated in the section "Planning for Visual Production". A rough outline of one method is shown below.



Movie - LIME YOUR SOIL FOR PROFIT

Audience - Farmers To teach them how to use Soil Kit. Must include incentive - Greater yield.

Purpose - Increase farmer use of Soil Kit to assure better liming practices in State.

Idea	Picture	Sound	Materials
Title	Colors LD	Title "Lime for Profit"	
	LD	Credit lines	
Good Farm land	LD	Fertile land with Variable Productivity	
Close of Lush + Sparse Growth of Legumes		split Frame	
Titles - Pop on		LIME made the difference	

The *Idea* column is most important. Ideas must follow a logical sequence to convince and create interest in the subject. The *Picture* column is a rough idea of the action that clearly describes the idea. The first notes in the *Sound* column are rough first thoughts of sentences to be included in the final sound script. The *Materials* column is included for notes on equipment needed to expedite action in the picture.

LANTERN SLIDES

The lantern slide is one of the most popular and versatile visuals in extension education.

Reasons for the popularity of lantern slides are:

They can be made by the individual worker at low cost.

They can be made either in natural color or in black and white.

Both the slides and the projection equipment are relatively light and can be easily transported.

Slide sequences can be readily changed to keep them timely and localized.

Slide sequences can be changed in length to fit local needs.

Slides have these limitations:

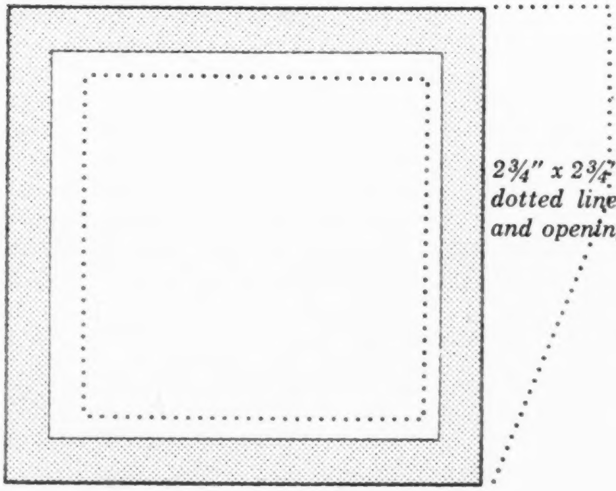
They do not show action.

They normally require 'live' narration unless synchronized with a tape recorder.

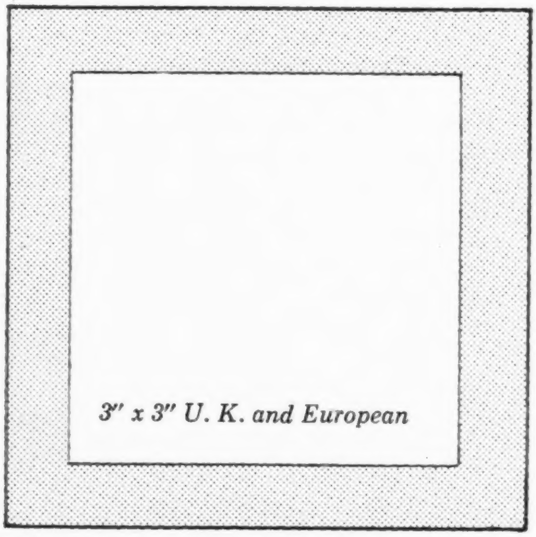
They require close cooperation with a projectionist throughout the presentation if the speaker desires to be in front of his audience.

The most popular type of lantern slide in use today is made on 35 mm film. When color film is used, a direct color positive transparency is the result. Some types of this film can be home-processed. Others require commercial processing. When commercially processed, the film is cut into individual pictures and placed in cardboard or glass mounts ready for projecting. These are called 2" x 2" slides since the mounts are 2 inches square.

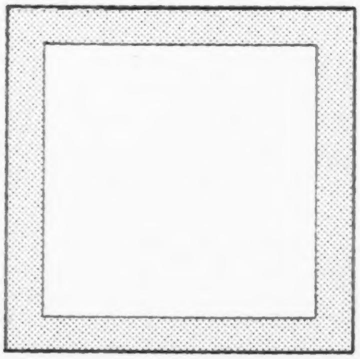
these drawings represent actual sizes of masks of the more commonly used lantern slides



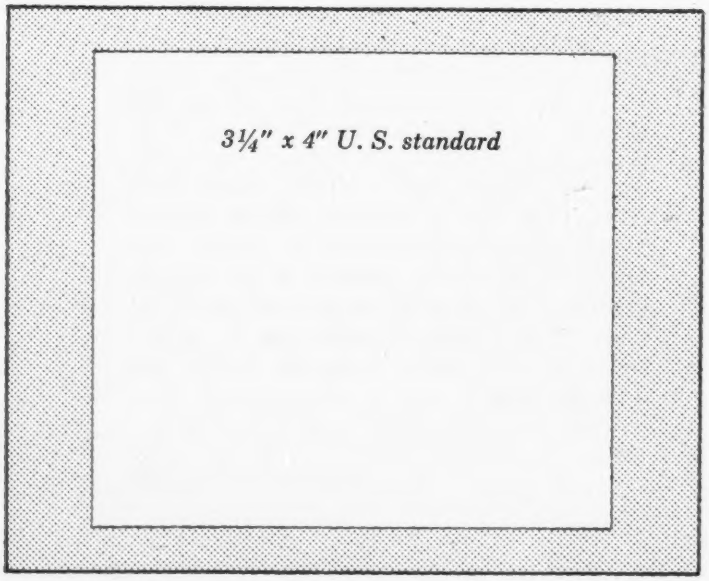
2¾" x 2¾" for 2¼" x 2¼" film
dotted lines indicate size of Polaroid mount and opening



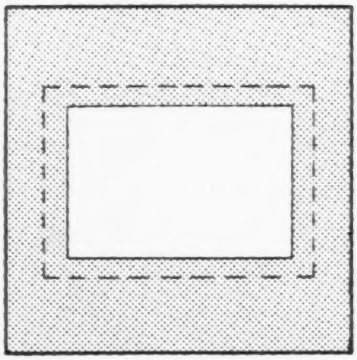
3" x 3" U. K. and European



2" x 2" super slide

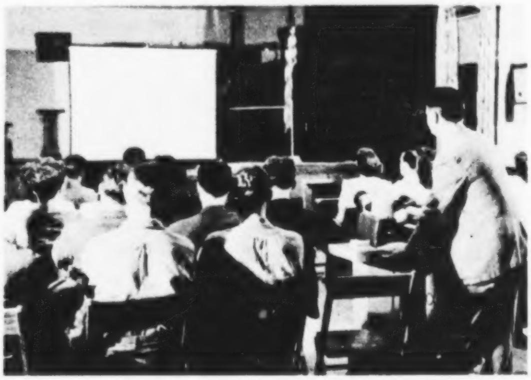


3¼" x 4" U. S. standard



standard 2" x 2" mount for 35 mm
broken lines indicate 828 or 'Bantam' opening

Hand drawn colored slides may be made in addition to photographic ones. Directions are available from such companies as Slidecraft Company, 257 Audley St., South Orange, N. J., or Keystone View Company, Market and Center Streets, Meadville, Pa.



Most projectors have either 300 or 500 watt lamps. Some projectors, designed for larger auditoriums, are made to handle 750 to 1000 watt lamps. All newer makes of projectors have 300 or higher wattage lamps and are made with forced-air ventilation. This keeps lamp and slides cooler.

Most projectors have a manual carrier for slides. Many are equipped with an automatic mechanism that places the slide in position for projection and removes it when desired. Automatic slide projectors are gaining in popularity. These have the slides prearranged in order in a magazine. Some projectors are so completely automatic that a teacher can stand in front of his audience and simply press a button on a remote control cord when he wishes to change slides.

Screens

Screens on which to project the pictures can be almost any flat, light-reflecting surface. Screens used for slide projection should be square so both vertical and horizontal slides can be projected to full size. If slides must be projected in daytime in rooms that can't be completely darkened, a beaded-surface screen and at least a 500 watt projector are recommended. Commercially made screens are available in the following surfaces with the characteristics listed:

Flat matte — Usually made of white rubberized cloth. Viewers in normal seating area all see the projected picture as an equally bright image. Fabric can be washed clean; is less likely to deteriorate from molds or fungi action in the tropics.

Glass beaded—Usually made of white plasticized or rubberized cloth to which have been attached minute glass beads. Viewers in normal seating area see picture best near the projection axis and less well away from axis. Viewers more than 25° from the projection axis usually see slightly dimmer picture than would be seen on a matte screen. Difficult to clean; susceptible to molds and fungi in tropics unless stored in areas of low humidity.

Aluminum—Aluminized fabric. These screens are used principally for stereo projection because the full effect of polarized images is available from metalic surfaces.

Plastic — Plasticized fabric. Plasticized fabric screens are more brilliant than matte screens and do not suffer the marked angular differences of the glass beaded screens. They are more difficult to keep perfectly flat.

In developing a visual program based on extensive use of lantern slides, thought must be given to adequate files for the slides. Every slide should be labeled directly on the cardboard mounting or mask with date and place taken and subject. They should be classified and placed in a box or other light-proof, moisture-proof, dust-proof container.

FILMSTRIPS

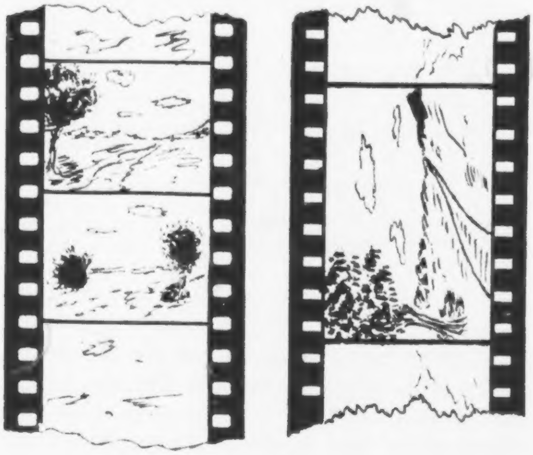
Like other visuals, there is a time and place when the filmstrip shows up to particular advantage.

Where audience participation is desired, projection can be paced to the 'stop-and-go' speed necessary for the speaker to get his points across and thoroughly understood. Moreover, when accompanied by a carefully prepared script, the chances of misinterpretation are small.

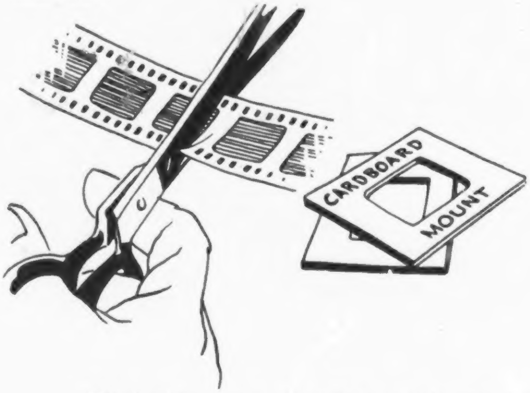
These advantages become more obvious when we see how a filmstrip is prepared and used. A filmstrip is a series of still photographs, diagrams, charts, lettering or drawing on a strip of 35 mm film. Perforated edges of the film fit over projector sprockets. When adjusted to project the first frame or picture on the screen, each succeeding image also will be in focus and in proper position on the screen.

The picture may be in color or black-and-white. It may be a series of photographs, a series of specially prepared graphics or a composite of both. Frequently, frames with words only are included for emphasis or when there is a change of theme.

Filmstrips can be made in single-frame or double-frame. The single-frame projector operates vertically like a motion picture projector. The double-frame operates side-to-side like a slide projector.



One of the advantages of the double-frame strip is that individual frames can be cut and mounted as slides. This allows the teacher to edit his own film, taking out frames that may not be of local interest, or adding slides that will give emphasis and interest to the presentation. Special cardboard mounts also are available that accommodate individual single frames in 2" x 2" slide mounts.



Projectors are available that can be adjusted to either single or double-frame projection.

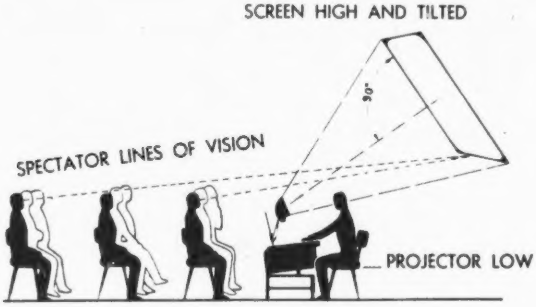
Number of frames in a strip varies with the subject to be covered. The average filmstrip ranges from 30 to 60 frames. If there are to be fewer frames it probably is best to stay with individual slides. Filmstrips longer than 60 frames tend to tire the audience unless they are of unusual interest and well presented.

Filmstrips are light, easily stored and shipped and condense much information into a small package. They do suffer from maltreatment such as finger prints, running through dirty projectors and improper handling. Once damaged, it is difficult to repair a filmstrip without removing part of it.

STOP
AND GO
PROJECTION

OVERHEAD PROJECTION

Overhead projection works on the principle of light passing through a large transparency and then being reflected on a screen in back of the operator. It enables the speaker to operate the projector from the front of the room and face the audience. The light source is strong enough to provide a good image on the screen in a lighted room.



COMMUNICATOR SEATED

Overhead projection is highly flexible. You can draw or write on acetate and the action is immediately flashed to the screen. You can use overlays and color separation to build a picture step by step. You can fill in blanks on forms projected on the screen. Transparent colored plastics can be cut by hand or machined to produce working models of simple or complex machinery in action. Such models are costly and time consuming to produce but their effectiveness can be equaled by few other visual methods.

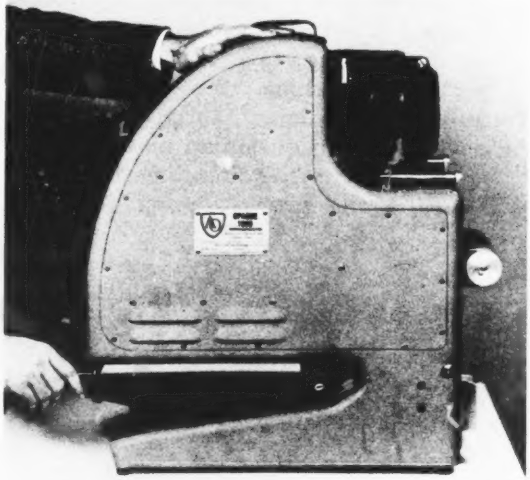
There are three basic means of preparing transparencies for projection. Positive black and white transparencies can be made by photographic process or drawn on treated acetate sheets. Colored transparencies can be made by exposure of the acetates to ammonia. Freehand art can be done on the acetates by means of wax pencils, inks and colored acetates.

Visual action and the opportunity for progression or 'story-build-up' plus its ability to provide a good image in a lighted room are among the reasons for the popularity of the overhead projector.

One of the main disadvantages of overhead projectors is their bulk. In the larger sizes—10″ x 10″ or larger—the equipment is difficult to move. Smaller 5″ x 5″ and 7″ x 7″ projectors can be easily transported. They do not have the light output of the larger sizes however.

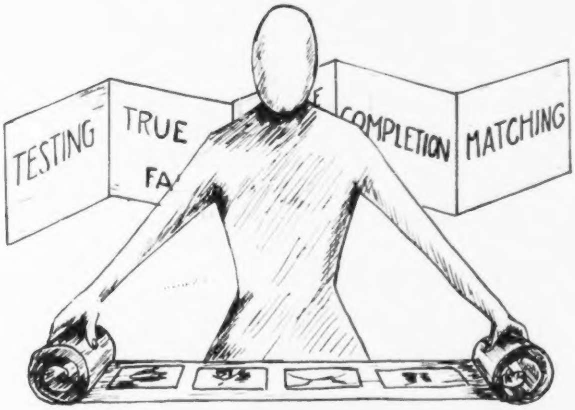
OPAQUE PROJECTION

Opaque projection works on the principle of reflecting light from an opaque surface such as a printed page to a screen. It is a technique for showing printed and illustrative materials and objects of small size to large groups of people. By enlarging the material through projection, many persons can see and learn at the same time.



Among the materials that can be used with opaque projectors are drawings and photographs, pictures from magazines and other publications, printed or typewritten copy, maps, charts and graphs, small objects such as insects, stamps or coins and many other materials. The image appears on the screen in the same color as it is in the item being projected.

A fold picture strip is a convenient method of preparing pictures for easy feeding through the machine as well as for filing them for later use. Cut a strip from heavy art paper or wrapping paper just wide enough to pass easily through the machine and long enough to hold all of the pictures you wish to include in the lesson. Fold the strip



between each picture, accordion style, for convenient storage and filing.

Continuous picture strips also may be used if the projector is equipped with a conveyor belt accessory. Individual drawings or continuous drawings may be made on long strips of wrapping paper and these are fed through the machine. This makes for a smooth presentation and permits a story to be developed through stages or steps.

The machine requires almost complete darkness in the room to provide a satisfactory image on the screen. Some newer models have greater illumination.

One of the advantages of opaque projection is the immediacy with which information may be collected and projected before an audience.

Disadvantages of opaque projection include the bulk of the projector. Although the equipment may not be excessively heavy, it is usually awkward to carry because of its size. The most common fault of opaque projection is not with the method itself but with those who use the equipment.

Because large pieces of data can be accommodated, it is too often pushed to its limits. For example, a single $8\frac{1}{2}''$ x 11″ letter or typed sheet will easily fit into the machine. The usual screen is so small however that the typed sentences may not be readable. Any time a lower case letter of type is smaller than 1/40 the screen size, many persons in the audience will have difficulty reading the words.

KNOWLEDGE
ATTITUDES
SKILLS

A person experienced in the delivery of chalk talks can instruct groups of varying backgrounds provided he knows in advance the age and experience of the group and has time to make preparation.

Some years ago the incidence of tuberculosis was known to be high in a certain area. A series of charts was prepared and posted. The charts helped get thousands of people in for tests. But there soon was much concern among health officials when very few people returned after 10 days, as they had been instructed to do, if the skin around the inoculation area turned pink.

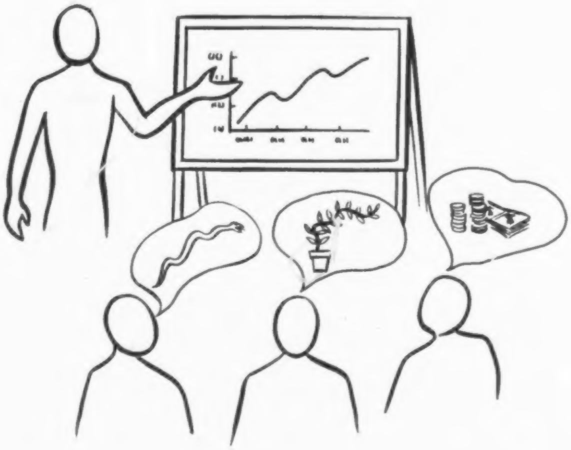
The charts illustrated very well the pink area to look for. Why then, didn't the villagers come in? A hurried investigation revealed the reason. To highlight the pink area, the artist had drawn a red circle around it on the chart. No one in the whole area had a red circle appear on his arm!

Choose the Visual that Will Do the Job

In the preceding pages a wide range of visual materials has been covered. When you are faced with the job of teaching a specific skill to a particular audience, you may be confused about which visual or combination of visuals to use. There are several guides to help you make a selection.

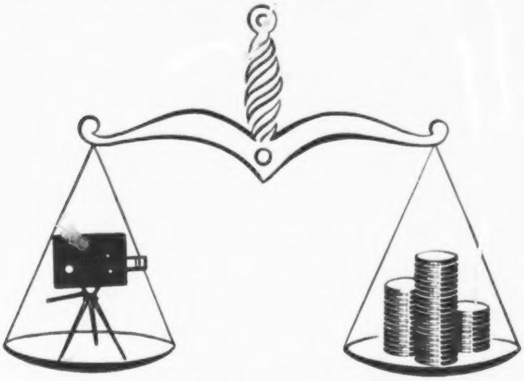
1. The *first* point to consider is the objective of the teaching. What changes do you wish to bring about? Do you wish to change attitudes or do you wish to teach methods? If you are to teach methods, what is the specific skill you want to teach? If a given chart, model, demonstration or other activity can contribute significantly to your objective—use it. If not, don't!

2. The *second* consideration is the experience, education and background of the audience. Perhaps no one would make the mistake of showing a film on tractor operation to a group of women who had never seen a tractor. But in many cases a film is shown just to show a film, rather than because of its suitability to the audience.



Price fluctuations over a period of time can be shown by a line graph to people who have had experience reading graphs. But to someone not having that experience, a graph would be entirely inappropriate. Children cannot grasp many of the ideas presented to adults in the form of graphs, charts and posters. They will learn faster from models, pictures, slides and movies if the real article is not at hand.

The receiver's experience and background determines what we should select in communication materials to use with him. We must start with the learner where he is. This means that we need to learn enough about him to avoid distracting or confusing elements in the materials and methods we use to get ideas across to him.



3. The *third* guide in the selection of visuals is cost, related to available funds. The chalkboard has been used for many years as one of the basic visuals because it is inexpensive and easy to manipulate. Flannel boards may be even less expensive but require more imagination. Magnet boards often are constructed for triple purpose magnet-, flannel-, and chalk-board use. Their expense is greater than the simple chalkboard but with imaginative use, they are much more effective. Flash cards are inexpensive and are excellent for drill. Exhibits can vary greatly in cost and their effectiveness can be just as variable. Costs of models can range as greatly as that of exhibits. Usually the most expensive visual is the motion picture. But in the right place it is highly effective and well worth the price.

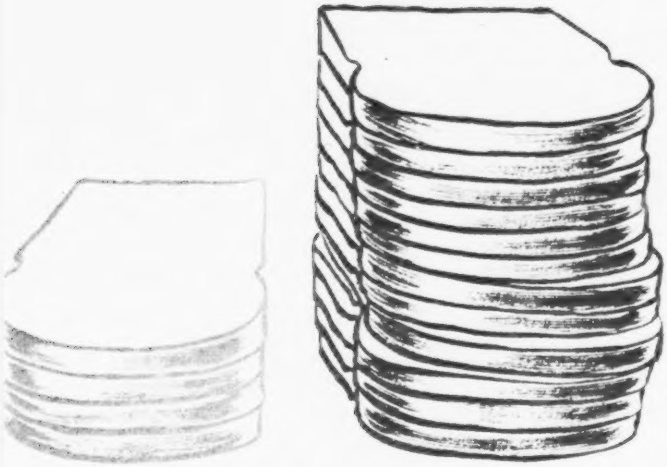
4. The *fourth* guide is the availability of the desired visual. As stated earlier, the actual object usually is the best teaching aid. But when it cannot be had or cannot be seen by an audience, a picture or drawing may be quite satisfactory. If the teacher does not have a picture, he can find something to draw on if no more than the sand at his feet. The more complicated visuals require equipment and often require power that may not be obtainable.

No Best Visual

Proper selection of visuals requires recognition of the fact that there is no one *best* tool in the visual kit. In fact, there is no one best tool of any kind in communication. Each has appropriate applications and each has conditions under which it should not be used.

Your responsibility is to get to know the characteristics of the various media. With this knowledge you are in a position to select best combinations of media for particular situations. There is no one best solution for all situations.

One last word. Try to evaluate the costs and effort necessary for good teaching not in monetary terms but in the results it produces. An extension worker in New York State recently answered a question about the weight of his visuals this way: "For years we talked and got no response. Sure my visuals are heavy but I'll take the weight. These things produce action."



Creative Visual Thinking

Behind every good visual is a creative idea. It isn't enough to design a good-looking illustration. Somehow an idea, associated with an educational purpose, must be visualized in order that the educational purpose can be achieved through use of the visual.

Creative thinking can produce the idea. This is nothing more than listing alternative ways of visualizing the message.

For example, the cost of producing a loaf of bread may be visualized by:

Writing the figures on a chalkboard.

Making a pie chart or cosmograph.

Showing actual coins — the correct number to represent the cost.

Stacking up some empty film cans to represent greatly enlarged coins.

Slicing from a real loaf of bread a portion representing the production cost.

Many, many other techniques.

If you have an idea for a flannelboard, consider it as a film strip. How would it work as a chalk talk? Could it be used on an overhead projector? Would it be simpler to handle as a set of slides? Could it be made into a chart or a flipbook?

As you think up alternatives, it is best not to make judgments on the alternatives while you are writing the list. Instead just put down every idea that comes to mind. Make the list as long as you can. Reserve judgments for later.

This method is known as 'brainstorming'. A group can practice the procedure just as well as an individual. Let the whole group know the idea you're trying to visualize. Then ask each one to throw in ideas as to how it might be done.

Here are some suggestions that will help you get the most from your group brain-storming session:

Define the problem and have it clearly understood by all.

Include someone in the group who is not familiar with the problem but who has a keen mind and is willing to give ideas even though some may appear ridiculous.

Take enough time to concentrate on the problem. Don't allow the group to be interrupted with other business.

List all the ideas and comments of the group without evaluation.

Evaluate and select the most promising ideas.

Once you have decided which visual to use, make a model of it or a series of small sketches before you actually produce it. Small cardboard models often are effective in showing what the visual will be like. Test the idea on your friends. Their reactions may indicate the probable success or failure of the idea.

The 'story board', discussed in the section—"Planning for Visual Production", can be very useful in creative visualization—particularly if you are planning a set of slides, a filmstrip or a motion picture.

In being creative, remember that a turtle never gets anywhere without sticking its neck out. This is when it pays to try things—even if occasionally you are wrong. The more alternatives you list before making a decision, the more creativity you get into your visual. Don't make the visual according to the first idea you get. List as many ideas as you possibly can. Then make the decision. Creative thinking is *imagination,* followed by *action.*

Planning for Visual Production

Careful planning helps keep visual production costs low and gives you better teaching aids.

Before any visual can be planned, you must establish definite teaching objectives. Visuals can't help 'fuzzy' thinking. Your objectives must be clear and specific. The next step is to decide what kind of visuals best meet your objectives—a set of slides, a motion picture, flannelgraph, transparencies for overhead projector, opaque material, charts, chalkboard or a combination. This decision is based on several factors including your audience, the subject matter, the availability of materials and help.

Let us suppose you decide a set of color slides will help you accomplish a certain teaching objective. A 35 mm camera is available along with a person skilled in using it. Color film is available and you can have the exposed film processed.

First discuss the project with your immediate supervisor. He may offer suggestions on financing the slides and getting needed help. Next, plan the slide set.

This three-point outline may help you.

1. Determine the purpose of your presentation. Set up the objectives.
2. Outline the subject matter.
3. Visualize the points of your outline.

The purpose of your presentation may be to: interest farmers in getting larger yields of wheat; give them the information they need; inspire them to action.

A slide set can help accomplish the first two objectives — depending somewhat on the situation. They may be more limited in the third objective. The point is to limit your use of slides to what they will do best.

Next, outline the subject matter point by point as you intend to present it. You may have 10 main points or you may have 40. The important thing is to write them in logical order.

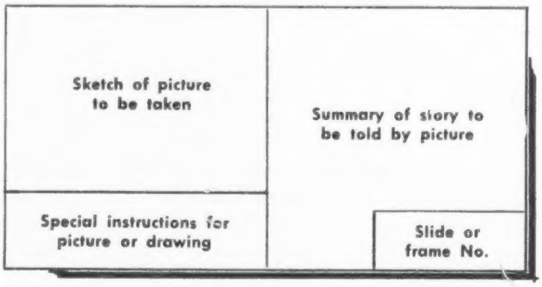
At this stage it usually is wise to show your outline to someone like a farm leader to get his opinion of farmer reaction. He may suggest changes that will improve your outline.

Storyboard

After this step an artist can be of considerable help. He may use the 'story board' technique which also is useful in planning motion pictures, filmstrips, flash cards and other visuals. With this technique, you divide a sheet of paper by a line down the center. On the right side make a list of the points. Then in the left column, opposite each point, sketch the kind of picture or art work that will best illustrate your idea.

A series of individually-numbered cards can be used in the same way, with a single idea written on each card. One of the strong points in favor of the card type 'story board' is its flexibility. Each card shows a single picture as a representation of a single idea. Thus if any error in visual representation or error in logical sequence is evident, the picture idea can be changed or the card placed in a more appropriate position.

Before any pictures are taken therefore, the logic and effectiveness of the final product can be evaluated. Use a line to divide the card in two parts as with the sheet of paper. Note this sample card.


Sketch of picture to be taken
Summary of story to be told by picture
Special instructions for picture or drawing
Slide or frame No.

With an agricultural subject, the majority of the slides probably should be taken in the field to show recommended practices. These would include preparation of soil, methods of fertilization, selection of seed, weed and insect control, harvesting and processing of the grain.

Before you make any slides, decide how many sets can be used to good advantage. One way to get duplicate sets is to have the original slides copied. Check first to see if duplicating facilities are available. Another way is to make several exposures when the original slides are made. This usually gives the best quality but the technique can be recommended only if your photographer gets a relatively high percentage of usable slides.

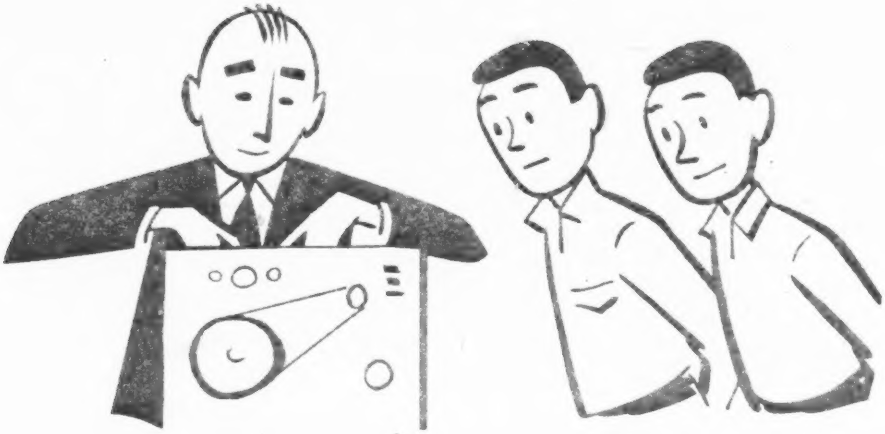
The same careful planning that goes into a slide set applies to all of the visuals you prepare. A few require even more planning because of greater cost or special use.

Motion pictures generally should be done by people skilled in film production but there will be occasional needs for amateur films — silent or single system sound — recorded on the film simultaneously as the picture is taken.

Exhibit planning also may start with a story board. Use cross section paper to lay out the exhibit to scale. Ready-made layout books about 8" x 10" in size with tracing paper over the cross section grids are convenient for this purpose. They facilitate making scale drawings of the exhibit to show where each part should be placed and how it will look in actual size. Keep in mind that an exhibit must first of all, *stop* people. It should *tell a story* simply and clearly and finally *inspire* them to do something about it.

If possible, get an artist to help you plan and produce your visuals. An artist can help you visualize subject matter and can give your visuals a more professional look. But if an artist is not available, don't hesitate to try your own hand at producing visuals. You will find that you can do a better job than you thought.

In planning visuals, consider also the matter of distribution. Visuals won't disseminate information while they are stored on closet shelves. One of the most important factors in planning for efficient production and use of visuals—movies, slides, filmstrips, posters, flannelgraphs, flash cards—is a plan to distribute them. You will want to work this out with your supervisor. He can give you some good ideas and help.



How to Use Visuals Effectively

In presenting subject-matter, visual aids offer the teacher a fast, direct, accurate approach to understanding on the part of his students. Understanding cannot be accomplished without first *a meeting of the minds* between the instructor and individuals in the learning group. Visuals help bring about a meeting of the minds. They focus attention on a single idea.

There must be a direct line of understandable thought between the minds of the teacher and the learners for maximum mental intake of the information being presented. It is important that this direct line does not become disconnected. Poor connections never result in efficient learning. Visuals can help you maintain clear, static-free lines of communication.

What do we mean by a certain term? What are the visual impressions from a spoken word? The need for a true visual interpretation of spoken words in the learning process is important to the teacher, to the trainee and to the village farmer.

For example, what is the mental image when the word DRAFT is spoken? Here are some of the definitions for this word:

A drawing, sketch, or design

The first or preliminary form of any writing

A current of air

The act of drawing or pulling

The taking of supplies, forces, money, from a given source

To conscript as for military service

A written order drawn by one person upon another

A drain or demand made on anything

The slight taper given to a pattern so that it may be drawn from the sand without injury to the mold

An appropriate visual can make absolutely clear which of these definitions the speaker is developing.

Here are a few ideas about visuals from the viewpoint of appealing to the audience and encouraging people to acquire knowledge:

They must please the senses—not offend.

They must be accurate.

They must represent things that are common and understandable to the viewers.

They must convey up-to-date ideas.

They must be simple in design.

They must encourage action.

They must fascinate, intrigue and stimulate to action.

They must entice the viewer to:

EYE YOUR IDEAS

TRY YOUR IDEAS

BUY YOUR IDEAS

PLAN EARLY

Planning simply is a means of increasing the chances of success and reducing the chances of failure in your visual presentation.

You consider the different alternatives and choose the best ones. You anticipate possible problems and try to avoid them. Planning includes such techniques as use of the 'storyboard' discussed in "Planning for Visual Production" as well as many of the following points.

Consider the equipment you will need to show your visuals. Will the talk be given inside or outside a building? Will visuals be shown under natural or artificial light? The same colored object looks different in daylight and artificial light. Is the subject-matter of the visuals related to the story? It is as important for a visual to 'tell the story' as it is for the narration to do so.

Estimate the size of the audience in advance. Construct visuals to the proper viewing size. The viewer in the back of the room or in the village circle must be able to see. If the audience can not see, the visual is useless. Before the talk, go to the back of the room and look at the visual from where the last person in the audience is likely to sit. Can every visual be clearly seen?

Variety in visuals is important. It permits change of pace in presentation and holds audience interest. Variety may include charts, posters, photographs, 2" x 2" slides, filmstrips, motion pictures, models, specimens, etc.

Variety also may be obtained through the use of color, colored charts and posters, photos and colored slides. Color selection is important for contrast and understanding. Color schemes should be common to the understanding of the audience. Brighter, lighter, more contrasting colors often show better in a dimly-illuminated area.

Consider facilities for preparing visuals and handout materials. This includes artist help, duplicating facilities, supplies. If the group is small and known in advance, prepare hand-out kits of materials with the name of the student on the kit. This adds to the importance of the materials and gives recognition to the individual.

Each speaker who gives a visual presentation likes to be self-sufficient. He would like to carry each item necessary to his own talk. At times however, this may mean such a heavy or bulky load of equipment that some compromise must be made. This often may begin with blackboards and screens and projection equipment—using locally owned pieces.

But this implies careful planning. Details must be specific and complete—even to chalk and eraser. Nothing is so disconcerting as the lack of an essential item in a visual presentation. If you repeatedly give the same presentation, make a check-list of needed supplies and equipment.

An oral-visual presentation is not complete without leaving with the audience 'take-home' materials for future review and study. Visuals, along with narrative section, should be duplicated where feasible and made available at the close of the presentation. Include enough copies for each individual.

PREPARE YOURSELF

Preparing yourself means *rehearsals*. The audience will soon detect unpreparedness even though the speaker may be a thorough student of his subject-matter. Rehearsals must include both the narrative and visual portions of the presentation. It is important that the visuals fit properly into the narration. A visual placed in the wrong place will kill the line of thought and disrupt concentration on subject-matter. Once the line of thought is broken, it takes much time to bring the audience back to the point of concentration where they were before. Rehearse the presentation a number of times so there will be no need to refer to written notes or manuscript.

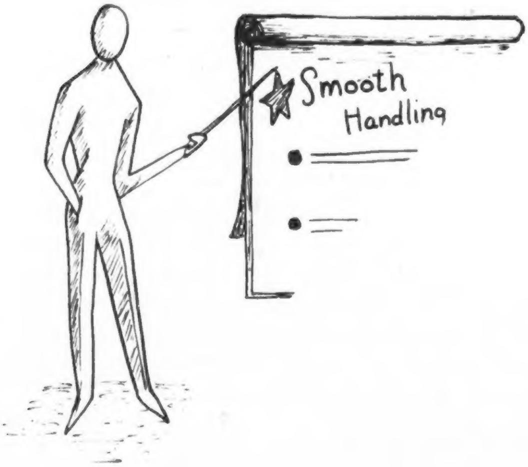
PREPARE THE GROUP

Give the audience an idea of what to expect in the visual presentation. Explain that it will be an oral-visual presentation.

When summary statements and duplication of visuals are planned for handouts, the group should be so briefed. This will avoid distractions caused by taking notes.

MAKE THE PRESENTATION

Visuals need be planned and processed for a specific subject. They should be alive, clean, neat and should leave the impression that they were designed especially for this specific audience.



In displaying visuals, the speaker becomes secondary in importance. The visual becomes the center of attention—the focal point of the discussion. It is important that the speaker recede from view. Work to the side and out of view of the visual. The speaker should not turn his back on his audience. He should place his visual on an easel and retreat to one side. He does a temporary 'fadeout', yet tells the subject-matter story.

Although visuals speed up the learning process, good judgment is needed on the part of the speaker as to rate of subject matter presentation.

The speaker should determine the level of knowledge of his audience prior to the presentation, then govern his speed accordingly. If he is to depend on an interpreter for language translation, he should take *twice* the time to make his presentation than to make it in the local language.

Pointed, direct and short sentence structure of narrative is important. Copy on visuals must be simple and direct.

As you make the presentation, ask yourself: "Is the audience keeping pace with me? Do they understand what I am saying? Am I going too fast?" An observing speaker can sense when an audience does not understand, is not learning. Lack of attention; irritations expressed on the faces of the audience, nodding heads—all indicate that little or no learning is taking place.

Add variety with humor, both within the narrative and in the visuals. Humor, properly used, helps to clinch the point of the serious discussion. It also helps the audience relax after a tense or serious period.

When a visual is placed on the easel, the speaker should pause to insure 'visual take' or comprehension on the part of the audience.

Change in rate of speaking, voice inflections, proper enunciation and good articulation are important requirements for highly successful presentations.

Summarize the important points of your presentation with repeat viewings of key visuals. Do not depend upon narration alone.

Distribute take-home materials following the presentation. These materials should supplement the presentation for follow-up review and study. Do not hand out materials in advance of or during your talk. This causes serious distractions and loss of attention and interest.

Plan Your Visuals for Multiple Use

In the booklet CAMPAIGNS IN AGRICULTURAL EXTENSION PROGRAMS—Number 3 in this series—the principle was developed that *the more times people are exposed to a new idea through various channels, the more likely they are to adopt the idea.* The booklet explains how to plan, carry out and evaluate educational campaigns in extension work.

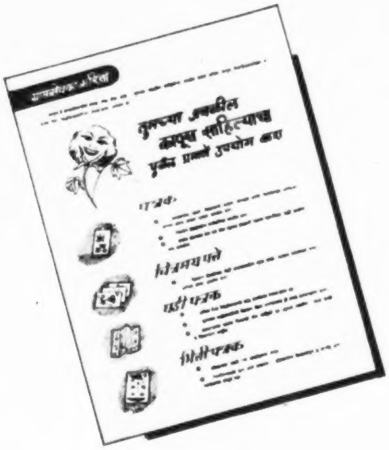
Because of the tremendous audience impact that is possible with the educational campaign, it is well to consider this approach in bringing your extension resources to bear on major agricultural problems. In any case, additional possible uses of visual material always should be considered before the materials are produced. This is particularly true in production of artwork.

To illustrate how artwork can be made to do more than one job, let us consider what was done in developing supporting information materials for a campaign to increase cotton production and quality in the vicinity of Nagpur in central India.

State department of agriculture officials listed 12 basic practices, based on research, that were essential for highest yields of top quality cotton. Cotton represented an excellent opportunity to increase farm income in the state so it was decided to launch a campaign to acquaint as many cultivators as possible with the recommendations.

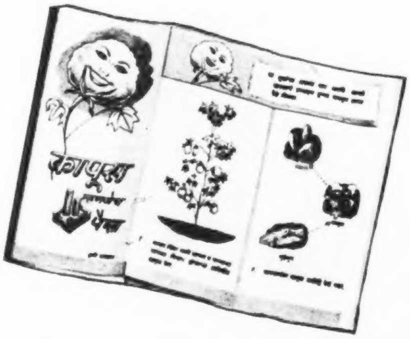
A kit of basic extension teaching materials was designed and produced in quantity by offset reproduction. The kit included a key leaflet of detailed information, an illustrated circular letter, a set of flash cards, a folder and a wall newspaper. The kits were turned over to village extension workers to carry the campaign to the farmers.

The key leaflet was designed to acquaint local extension workers with the new subject-matter on cotton production—a production handbook. It contained drawings to illustrate each of the main points. It included background and technical information to help answer questions. It was *not* intended to be placed in the hands of cultivators.



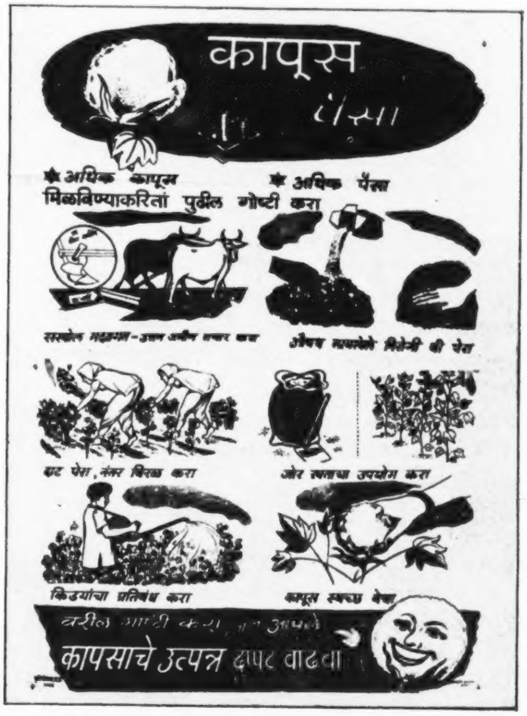
The illustrated circular letter was designed to acquaint village leaders with the proposed campaign, to explain how it was to be conducted and to enlist their cooperation and support in the effort.

The flash cards were designed as presentation aids for the village extension worker to use in acquainting cultivators with the 12 steps.



The folder was to be given to each cultivator who attended the first meeting. It was composed almost entirely of illustrations—the same ones shown in the flash cards. The idea was to give each cultivator information to take home. The illustrations were to help him remember the recommended practices.

The wall newspaper was to be posted in the village by the extension worker after the first meeting. Its function was to reinforce the flash cards and folders and produce additional visual impact on the cultivators who attended the first meeting. It was also designed to tell the basic story to village women and children who represented forces of influence on the cultivators. Its purpose also was to reach cultivators who did not attend the first meeting.


कापूस
अधिक कापूस
अधिक पैसा
मिळविण्याकरितां पुढील गोष्टी करा
किडयांचा प्रतिबंध करा
कापसाचे उत्पन्न दुप्पट वाढवा

Artwork for the campaign was planned for multiple use from the start. It was prepared on large cards to facilitate photo-offset enlargement and reduction. The drawings were simplified and showed only essential detail.

In preparing the leaflet, the drawings were reduced. In the flash cards they were enlarged so that each card was filled to its edges with an illustration representing a recommended practice.

In the folder, the drawings were greatly reduced in order to place the whole illustrated story on both sides of a single sheet of 8½" x 11" paper. In the wall newspaper, they were enlarged slightly.

This actual example illustrates how multiple use of artwork can be planned right from the start. Multiple use of art not only cuts time and cost of art production but results in production of more effective extension teaching materials.

Planning encourages you to consider the different possibilities in teaching materials. You are likely to think of some that otherwise might have been overlooked. For example, a set of 2" x 2" slides easily could have been made from the drawings. The artwork could have been proportioned to fit the slide masks. By repeating the illustrations in the different visual materials, they show an obvious relationship to each other that is bound to increase the impact of the message on the audience.

Here are some additional suggestions to help you make multiple use of your visuals.

Lantern slides in the size 2" x 2" have a projection ratio of 1 to 1.5. This means that a drawing to fit the proportions of the slide should be prepared in the ratio —say 6" to 9". If posters can be prepared with or very near the same ratio, both can be made from the same art.

Many publications also have the ratio 1 to 1.5. Where this is true, the cover for a publication may be photographed for slide use. Early planning allows re-use of art and photographs in many ways.

Recently a U. S. county agent asked a visual aids specialist to help design a poster for an educational campaign. The visual specialist pointed out the desirability of designing a symbol for the campaign that could be used on posters, exhibits, letterheads, in newspapers and in other media. He explained that once the audience associates the symbol with the campaign, it helps carry the message each time it is seen. Repeated exposures to the symbol help 'sell' the idea. And only *one* piece of art work is necessary!

Another aspect of multiple use is the re-use of the same visual for a different audience in a different locality. This applies to exhibits more than any other visual.

One state in the U. S. made an exhibit for its state fair. During the week 40,000 persons saw the exhibit and discussed the subject with the attendants.

At a small added cost, the exhibit was redesigned to increase its flexibility and portability. In the next six months 122,000 additional persons saw the exhibit in four different areas of the state.

As a result the exhibit cost only a fraction of a cent per person who saw it. This was possible because the original plans allowed for later conversion at low cost.

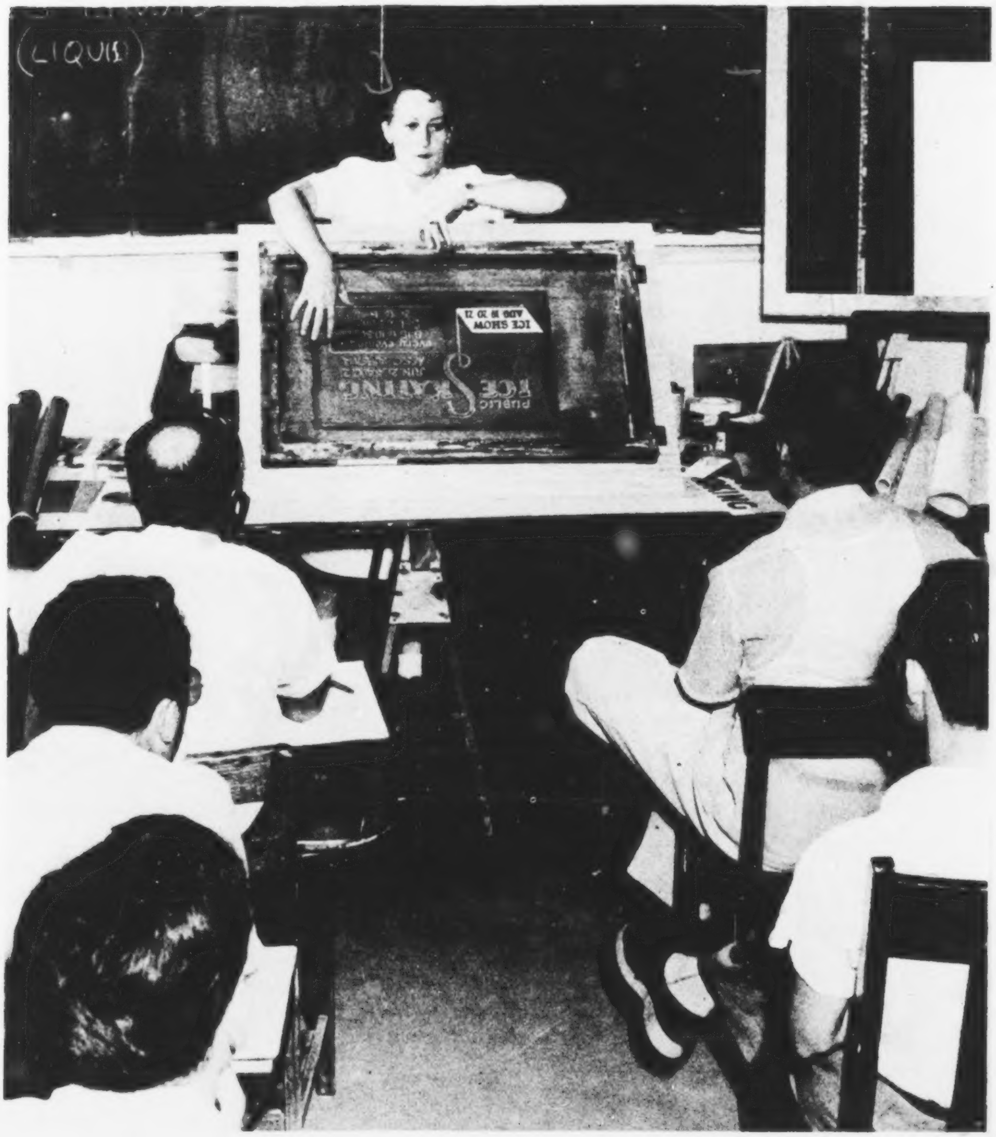
Another area in which multiple use can be made of visuals is in flannelgraph presentations. Here the key is to make interchangeable flannelgraph parts in the same style and in compatible colors. These can be filed and used in making up flannelgraph stories at a later time.

An envelope containing several different illustrations of people, buildings, cattle, chickens, sheep, crops and implements will enable you to meet many of your future flannelgraph needs, saving you both time and money.

You also can increase multiple use of visuals if they appear without letters. Line drawings and caricatures can serve as visual focal points without great need for word labels. It is the *picture*, not the word, that is the visual.

In the long run, multiple use can be an important key to the success of your visual program.

How to Train Others to Use Visuals



Many extension field workers and specialists would make more effective use of visuals if they had more information about them and were given training and guidance in their use.

If your staff members are like most extension people they have incomplete knowledge about the types of visuals available. Few realize that visuals not only can make their teaching easier but also far more interesting and effective. Many do not know that materials for making good visuals usually are readily available. Others who may now be using visuals can learn how to use them even more effectively.

Today's need for technological change is a great challenge to teachers to make learning more interesting, more permanent, more vivid and faster. Visual aids can help teachers accomplish these goals. This can be done by a well-planned and conducted program of training field workers and specialists in production and use of visuals.

It is necessary to obtain approval and cooperation of administrators before such a training program can be started. Without administrative support for use of staff time and without a budget, no training program can be successful.

DEVELOP INTEREST AND SUPPORT

In order to obtain the cooperation of your administrators, supervisors and other staff members, it will be necessary to convince them that the increased use of visuals can help accomplish extension goals faster, easier and at a saving. You must convince them that visual aids can do these things:

Overcome language barriers. Even where the technician and the learner speak the same language there are language barriers that must be overcome if learning is to take place. Visuals are a universal language.

Provide a wide variety of 'tools' to aid in teaching. The many visual 'tools' available allow a technician to select one or a combination of visuals that will fit a particular teaching problem or a particular audience.

Reach more people. Visual aids allow the technician to bring learning to more people in a shorter time. An extension worker can use his skill and knowledge to supervise production of visual aids that may be used in hundreds of communities while he is personally working in only a few. Visual aids can be sent into areas where he cannot visit.

Make learning faster. If people understand things, they learn faster and remember longer. Visuals make understanding clearer and explain in a 'universal language' the how, the what and the why.

Make training real. Words alone will not convince people. People believe what they see. If visuals are used to show people how new methods or new tools can aid them, they are more convinced than if words alone are used.

Visuals reach many people at low cost. The cost of making and using visuals when figured on a per-person-reached basis is low. Visual aids can be used again and again. Often after an extension worker has left the village, visuals continue to carry his message and remind people of his teaching.

They can be made locally to fit conditions. Visuals suited to the people, the budget available and material at hand can be produced locally.

In this first phase of planning a complete and long range training program, you will be, in effect, a 'salesman'. If you can 'sell' the above concepts of the value of visuals in an educational program, you will have accomplished the first important step toward a successful training program.

There are many ways in which you can sell these concepts. Individual conferences and demonstration sessions with your administrators and supervisors is a practical way to *show* the benefits of visuals. Naturally you will plan to make use of good visuals in these meetings with administrators.

Another practical way to demonstrate the value of visuals is to ask permission of your administrator to make up visuals that he can use in some future talk or demonstration.

Still another way is to select a co-worker whom the administrator respects highly. Make up special visuals for him to use in his teaching program. Then arrange for the administrator to see the visuals in use and to hear about the successful results this teacher had with visuals.

Annual staff conferences and district or regional meetings are ideal situations where a demonstration of the value of visuals can be presented to the entire extension staff.

The sum total of this salesmanship job should be increased interest on the part of your administrators and the majority of extension staff members to make greater use of visuals in their programs.

Once interest is stimulated and you have permission to start a training program, involve your administrators in the planning of your program. Get their ideas on training. Obtain their support for use of staff time and a budget. Arouse the enthusiasm of these administrators so they too will become enthusiastic 'salesmen' for more effective use of visuals.

IN-SERVICE TRAINING

Your biggest job in visuals training will be to teach field workers and specialists how to make and use the aids.

A good starting point is to arrange a demonstration of selected visuals at an annual conference or at regional meetings. This demonstration could be a part of a program arranged for other topics. It could take a day or less of the program time. After the demonstration take a poll of staff members to determine which of the demonstrated visual aids they would like to have special training in production and use.

This poll will indicate the visuals of most interest to staff members. It also will involve extension workers since they will have had some part in determining future training emphasis. Use the poll as the start of your planning. Temper its results with your own experience and judgment. There are many in-service training methods that could then be used. Listed below are a few successful ones.

Training Meetings or Workshops

Probably the most successful training device is to bring staff members together in workshop groups of not more than 25-35.

Arrange your program so the extension workers will have time to make and use visuals under the supervision of a team of visual specialists. Highly effective workshop meetings of from 3-5 days have been held in many countries. When participants went home, they took with them not only knowledge of how to make and use visuals well but also a set of visuals they could put to immediate use.

It is wise not to try to teach participants production and use of too many different kinds of visuals at any one workshop. It is much more effective to give instruction on only three to five visuals and to make that instruction complete. Allow plenty of time to develop enthusiasm for the use of visuals, to allow participants time to make sets of visuals that can be used when they return home; to allow for practice sessions in the use of the visuals.

Make sure that your instructional staff is in proportion to the number of 'students' so that during workshop sessions, instructors can give a maximum of individual help to students.

Sometimes forgotten in the business of teaching visuals is the encouragement of staff members to become good 'showmen'. Some people are more adept at using visuals than others and because of this can 'put on a show' so the audience will enjoy learning about a topic. Showmanship ability can be improved in all staff members.

A good showman, with practice, soon develops a sense of knowing just how to appeal to an audience. An informal friendly manner and the ability to approach people's problems on their level and in their language can help any staff member win his audience and make more effective use of visuals in his presentation.

How-to-do-it Booklets

The production of booklets showing how to make and use particular visual aids will be an important part of your training program. If flannelgraphs, posters, charts, slides, puppets, circular letters and other visuals can be used effectively in your country, you will want to produce mimeographed material telling how to make and use them. Some countries duplicate this material so that each section can be added to a folder or looseleaf notebook. This makes it possible to revise a particular section if conditions change.

This booklet itself is a source of material for how-to-do-it booklets. Consult the section, "Kinds of Visuals". Make adaptations to fit your local situation. Translate the material into language your staff members can easily understand. Duplicate it. Make sure that you use good illustrations in your how-to-do-it booklets.

Tip Sheets

A regular house organ or inexpensive publication for your staff members can be used to carry information on visuals and other information media. Many countries mimeograph or print a monthly house organ and send it to all staff members. This not only carries how-to-do-it information but also contains success stories of how individual field workers and specialists are making effective use of particular visuals or combinations of visuals.

Individual Assistance

Follow up on formal training in workshops with field trips to give staff members special help in making and using visuals. Your visual aids specialist can be of great help to field workers in giving individual assistance and advice.

Many times it is possible to arrange such assistance so the entire staff in a local office can be helped and given new enthusiasm. Although this phase of training takes time and money, it is essential in training. Some countries make certain that district supervisors are well trained in visuals so they can offer individual help to field workers when supervisors make their regular visits.

Contests

One way to promote widespread use of visuals is to plan a contest for staff workers and judge their production and use of visuals either on an individual or regional office basis. Competitions do much to encourage greater use of teaching aids. Prizes for these competitions need not be costly. A plaque or scroll may be all that is necessary. Companies sometimes are willing to donate prizes.

Make certain the winners are given public recognition in meetings and through press and radio. It is also good to exhibit winning entries at staff meetings. This not only is a form of recognition but also may give other staff members new ideas on making and using visuals.

PRE-SERVICE TRAINING

Your responsibility for training does not end with your present staff members. Plans should be made so that young men and women who are now studying to take positions on your staff in the future also will be given instruction in visual aids.

Agricultural schools, colleges or other educational institutions which supply your staff with field agents and specialists should be contacted and encouraged to teach courses in production and use of visual aids. Their faculty members should be exposed to the effectiveness of visuals in class-room teaching so students will be able to see their instructors make practical use of effective visual aids.

One way to encourage both of these goals is to invite faculty members to attend national, regional or local visual training sessions or worshops which you arrange for your extension staff. Usually when these people realize how effective visual teaching is, they encourage their faculty members to use visuals in the classroom.

TRAINING IS A LONG TIME TASK

Educational advances are characteristically slow. Do not be discouraged therefore if your visual training effort moves slowly. In fact, it is better for it to move slowly than to move so fast that it is soon over and forgotten or that the training work load is so great that poor teaching results.

Remember that training is a never-ending task. This is especially true in visual aids where new methods and materials are constantly being developed.

Plan your training on a sound basis and with a long-range plan. Give sound training to your staff members. Encourage them not only to use new materials but to improve the effective use of older visual tools as well. Remember that while visual specialists are in the business of planning and producing visuals, they also are teachers. By teaching others, their work can be multiplied many times.

Appendix

FORMULAS FOR MAKING TERRAIN MODELS

1. 1 pint sawdust (ordinary)
   1 pint plaster
   ¼ pint school library paste

Dissolve paste in water just enough to thin. Add plaster; add sawdust. Knead to consistency of tough dough.

Texture very good. *Setting time 15 minutes.* (A little too fast for large areas).

2. 1 pint sawdust
   ¾ pint plaster
   ½ pint school library paste
   3 drops glue

Dissolve paste in water to thin slightly; add glue; add plaster; add sawdust. Knead to consistency of tough dough.

Setting time 8 hours.

3. 2 pints newspaper pulp (wet)
   1 pint plaster
   ¼ teaspoon glue
   ½ pint water

Soak small pieces of newspaper in water overnight. Rub wet paper between palms of hands until it is ground to pulp. Add glue to water; add plaster; add newspaper pulp. Knead to consistency of heavy dough.

Setting time 3 hours.

4. 2 pints newspaper pulp (wet)
   2 pints plaster
   ¼ teaspoon glue
   ½ pint water

Soak small pieces of newspaper in water overnight. Rub wet paper between palms of hands until ground to pulp. Add glue to water; add plaster; add newspaper pulp. Knead to consistency of heavy dough.

Setting time ½ hour.

5. ½ pint newspaper pulp (wet)
   ½ pint dry clay, powdered, sifted through ordinary screening
   1 teaspoon glue

Add dry clay to glue-water solution; add paper pulp. Knead to consistency of dough.

Setting time 12 hours.

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